THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR.

WITH WHICH IS INCORPORATED "THE BRITISH ARCHITECT."

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THE PROMINENCE OF ARCHITECTURE.

THERE have been times when activity and enterprise were so great that the citizen was ahead of the architect. All this is now so changed that at present there is not enough work to go round. Time was when the harvest was plenteous and the labourers in the field of architecture were few; when, in fact, the enterprising young architect had but to show the strong bent of his mind in the art of beautiful building and his countrymen recognised his qualifications and turned to him, bestowing upon him confidence and often treating him rather as an inspired individual in the matter of building. There must be a town hall—who was to provide it? The church must have a new aisle—who was to contrive it? Who was to build a new county court, for a new judicial circuit had been created? Or it may have been that a new market house must be provided, or how could facilities for the trade of the district be met? In such situations the public-spirited leaders of the community felt that they were confronted by a problem without being able to chance upon any solution unless they could find someone who had the necessary artistic instinct. One can picture the city magnates of the time belabouring their wits to contrive something, and perhaps certain of the families in the neighbourhood would come forward with visionary schemes upon which they would place great store, without seeing exactly how the thing was to work. There have been times when the architect was at a premium. Now so much is changed. Owing to slow recovery after a great war occasion for enterprise has to be created and industry aroused and interest stimulated. A deal of leeway has to be made up; a new spirit needs to be infused into everything.

Architects are running into the danger of finding themselves in a stagnant back-water, out of sight and therefore out of mind. They need to be more emergent, we are told, "albeit without being 'shoppy.' We wish to soar above all that to the higher atmosphere more worthy of our art and ourselves." There is a danger of the world generally regarding architects askance as being given to commercialism, and they must see to it that they do not favour this notion. They need rather to be in advance of the public, rather as promoters than followers; more as pioneers than as automata acting only under external stimulus or incentive. For they ought to be creators declaring the spirit that is in them to vitalise and encourage. They need to get back to that spirit that has long gone by which offers to an apathetic world something of a rebirth; to a spirit which points a better way. The architect needs to be emergent without being guilty of self-advertising, and his art more prominent without being self-conscious. To this end he may do well to adopt a more aggressive policy, with greater advantage to himself and to the public as the disseminator of new ideas. These are hardly the days of patronage, which belongs to a bygone era. No longer is the architect the promising friend in need of the public; he tends to become forgotten, and, indeed, superseded. The architect had better be in advance of the public in his art, and he would do well to promote schemes, and be ready with the solution of problems before they present themselves, rather than follow in the wake of a popular movement.

It is suggested rather that architects might very profitably formulate schemes on paper, and by other means, whether graphically or by literature, induce the public to turn a favourable eye on their endeavours, stir interest, and turn away apathy—that blight which is pervading so many activities at the present time. They need to kindle warmth and encourage circulation of ideas. Would it not be of real service to promote among architects the production of designs, the abolition of dead art, to clear the ground of the obsolete, and to draw attention to what is really ripe for advancement? To hold exhibitions periodically for the illustration of such schemes would also be a fitting sequel. We remember many years ago Norman Shaw gave the world a scheme for the new lay-out of Piccadilly Circus; what has become of it? It has been considered in Germany, as will be seen from the article we print on another page. But this is only one in a hundred of different projects which many architects might voluntarily take up; not like subjects set for an examination, but something which will reach maturity in the fulness of time. Architects want quietude for reflection in these days. They need to dwell on something and not to rush with ill-considered haste from one point to another. Their attitude in all such matters should rather be that of the philosopher than that of a traveller—to ponder, and not plunge to and from points of only superficial and temporary interest.

Besides popular exhibitions of architectural schemes there might be popular architectural lectures upon them, and the success of the R.I.B.A. course of popular lectures last year encourages the belief that the general public would be interested. Should these be successful they would have the double effect of creating interest in these matters in the mind of the public, and of affording an opportunity to their originators to make their mark as designers, so that, should their ideas come under the notice of public bodies, there would be a chance of doing something really great and useful. British architects should endeavour to do for London what Hausmann did for Paris, or what Von Hansen and Hasenauer did for Vienna. They should not rest on their oars till the moment arrives when schemes are required, but should have them ready-hatched. The need for large projects will not disappear, and the more comprehensive they are the less likely are they to become obsolete. The suggested need for a large piazza from Trafalgar-square past St. Paul's, Covent Garden, on the north side of the Strand, to Long Acre, will not become out of date for many a day, in connection with a monumental "Bridge of Triumph" to span the river at Charing Cross, and it may materialise in time when funds are forthcoming, although perhaps not in our time. Then there are the new railway stations and rebuilding of Southwark which will have to come. But there are many other vast improvements which will be required, and many other projects to be put forward in the Metropolis. From such dreams the mind of the architect should not be rudely awakened.

NOTES.

Manchester and Unification.

The first of the presidential addresses for the new session of societies allied to the R.I.B.A. was delivered last week by Mr. Francis Jones, President of the Manchester Society of Architects, who made some vigorous remarks on the subject of unification and registration and the election of the present Council of the R.I.B.A. It will be of interest to hear the views of the Presidents of other allied societies—and for these we shall not have to wait long—as in this way we may obtain some indication of provincial opinion on the recent election and some corroboration or otherwise of the belief that the election showed a widespread desire to reverse the unification and registration policy of the late Council. Mr. Jones's address, which we give on p. 576, contains little or nothing to suggest that Manchester's opinion has changed.

Town Planning Exhibition, Manchester.

The Town Planning Exhibition, arranged by the Manchester and District Joint Town Planning Advisory Committee, and shown in the Town Hall, was a revelation to those who had an opportunity of viewing it. The exhibition was unusually instructive and interesting, and showed what excellent work is being done by local authorities and their advisers in the preparation of town planning schemes for various parts of the country, but it must have been a surprise to everyone to notice the undoubted interest of the public in the exhibition and the large number of children who were taken in conducted parties to see the plans and models. It is difficult to imagine such an exhibition being so well supported in London by the general public, and those responsible for the exhibition are to be congratulated in every way.

Sentiment and Wages.

In Mr. Walter Cook's excellent pamphlet on "Speculative Building" he says the general feeling appears to be that the cost price of building will eventually settle down to a level of about 50 per cent. above the pre-war price, leaving out of account the fluctuations due to supply and demand. He does not agree with the view that prices will sink to pre-war levels, because this would mean that wages would sink to pre-war levels. "I do not think, and sincerely hope, that they will never do so. They cannot do so if we are to make good the promises made to the men who fought for us." We thoroughly respect Mr. Cook's opinions, and we draw attention to them with the object of inquiring whether we may be centring our hopes upon a supposition which is doubtful. It is, of course, a tremendous problem in philosophy to work out the rigid application of economic laws to human life, and it is a matter for the individual to consider exactly what conditions he had in mind which would comply with the promises made in the heat of the war fever. Our intentions may be good, but it may be that what we are hoping for is an economic impossibility, at least in the sense that the result might be very different from what is expected. We assume that the general idea is that a higher basis of wages for the workmen should be maintained, but presumably we mean the workman to be better off, or, in other words, to have better conditions for his money.

Sketch of Old House, Hurstpierpoint, Sussex. By Mr. J. A. Avery-Fowell.

Real and Fictitious Wages.

At once we are face to face with the question of real wages, and the fact that commodities would be dearer than pre-war—as they are at the moment. If the cost price of building settles down at 50 per cent. above pre-war, surely we must assume that everything else will settle at this level. We deplore the suffering which is being caused through unemployment, and we respect the motives in trying to keep up wages, but we would be glad if anyone could show that the workman would be any better off on a stabilised basis of wages and prices higher than pre-war level. All evidence hitherto has gone to prove that the workman is actually worse off owing to the fact that wages and prices of food move in a vicious circle, with the prices of food showing a reluctance to deflate quickly enough to avoid the hardships caused by lower wages. The question of striking a stabilised wage basis is not, however, the whole problem; we discover by experience that we have still to find and maintain good trade and employment for everyone. There is a flaw somewhere in our economic theories when wages in certain industries are 100 per cent. above pre-war standards, and nearly all workers are on organised short time. Undoubtedly great uncertainty exists regarding the future stabilised level of post-war prices, and it is difficult even to hazard a guess. The alternations of boom and slump, the queer relation of wages to prices, and of production to prosperity, have become admittedly incomprehensible to laymen.

Charing Cross Bridge.

So we are to have our Charing Cross Bridge after all, and many other good things besides. We can only hope that the daily paper is right when it gives us this information; what Londoners cannot or will not do for themselves others are to do for them. The cable says "a London-American syndicate is negotiating for the lease of important sites in Central London and its plans include a scheme for the improvement of the Strand and Charing Cross district, the removal of the S.E. & Chatham Railway station, and the construction of a new bridge across the Thames with big office buildings, hotels, and an opera-house." If the designs are good and the money forthcoming we shall indeed have reason to congratulate ourselves that our lack of foresight and enterprise is being made up for by someone with long vision and imagination.

Unlicensed Freedom.

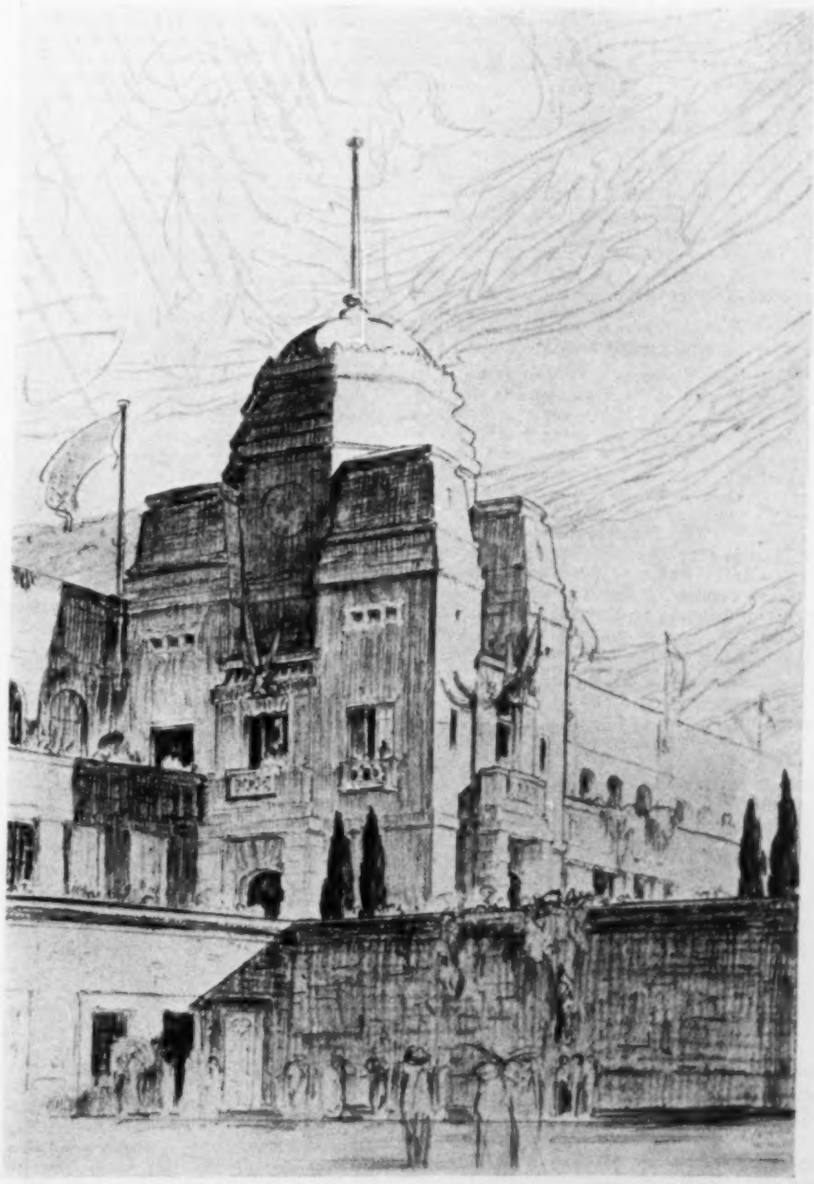
Though the freedom of the individual should not be restricted in any arbitrary way, and he should be able to go about his business without being impeded by fussy interference with his liberty of action, it should not be forgotten that the public interest ranks first, and that this liberty may go too far. We think that it is disregarded when for purposes of trade or business the character of our streets suffers harm. Yet how often we find, placed down in the centre of some quiet town of traditional character, the

most unsightly shop front, garage or other premises, erected without any regard for the inhabitants or the amenities of the street which they disfigure. Many of our ancient country towns are suffering terribly in this way, and there would appear to be little or no appreciation of the great harm done, and no local public opinion sufficiently interested to intervene against the injury. It is a common sight to see any kind of ugly premises that will serve the purpose erected, often in prominent positions, regardless of the injury done to the character of the town and street, and buildings of beautiful local character are either pulled down altogether or mutilated for the purpose of making room for such erections or inserting new fronts. This outrage goes on without let or hindrance so far as we know, and there seems to be no means whereby this mutilation can be prevented, unless our citizenship becomes more active and militant against the unlicensed freedom of commercial interests to override everything else. We have not much faith in committees of public taste, but a greater interest shown by the locality over its own possessions would create a public spirit which would soon make itself felt.

Relief in Wages. We have on several occasions referred to the enormous cost to the country of having to support in complete idleness such large numbers of unemployed, and have urged the need for a better system. There is great cause for improved methods to relieve the country and local authorities from so great a burden as is involved in present methods of relief. We are, therefore, glad to hear that local authorities are arranging to send deputations to study the new system which is now working at such places as Leicester, Pontypool, Lowestoft, &c., where the enterprising District Councils have adopted a new method of meeting unemployment by providing profitable work for the able-bodied, as against maintaining them in idleness. Croydon has also set a good example in the same direction, having adopted a system under which, instead of paying relief to the destitute, the Guardians provide them with a ticket for so many days' work under the Town Council upon relief work, and the men are paid wages by them equivalent to the amount of relief granted. This, if wisely administered, is in all ways a great improvement; so much better for the men than enforced idleness, the best of them hating the system of doles intensely. Investing thus the relief granted in labour, it returns again in the work done, and, instead of accumulating only, the cost is reduced by the value of the productive work, which can be set against it. To the Labour Party must be given the credit for the initiating of this better method of dealing with unemployment, they having constantly urged the importance of organising work of national utility, such as roads, harbours, afforestation, &c., occupying the men in useful work instead of wasteful idleness.

Sheds, &c., on Housing Estates. The Leatherhead District Council has taken a step of some interest in instructing its architect, Mr. H. Gardner, to prepare a sketch for sheds for the tenants of its housing scheme who desire to keep cycles, garden barrows, tools or poultry. The sheds will all be of a uniform design and will be a great improvement on the usual odd and freak-like erections so often erected by tenants. Accommodation for cycles, tools, &c., is needed by tenants of small houses, but it is desirable that such structures as are erected should not be an eyesore.

The Port of London New Offices. The generous tribute to the architect of the new Port of London building, made by Viscount Devonport, Chairman of the Port of London Authority, at the opening proceedings on Tuesday, is worthy of comment, as the work of the architect rarely receives adequate recognition at such functions. The occasion was exceptional, and the applause with which Lord Devonport's remarks were received must have been gratifying to the architect, while the knowledge that such recognition was accorded will be a satisfaction to Mr. Cooper's brother-architects and all who wish to see the work of the architects of similar buildings properly recognised.



British Empire Exhibition, Wembley: Eastern Tower of Stadium. (*See p. 577.*)
Messrs. John W. Simpson, PP.R.I.B.A. and Maxwell Ayrton, F.R.I.B.A., Architects.

GENERAL NEWS.

Professional Announcement.

Mr. Hamilton H. Turner, F.S.I., has removed to 18, Queen Anne's Gate, Westminster, S.W.1.

R.I.B.A. Exhibition of Architecture.

It has been found necessary to postpone until further notice the exhibition of British architecture which was to have been opened on November 1st in the Galleries of the Royal Institute.

Institution of Civil Engineers.

It is announced that H.R.H. the Duke of Connaught has kindly consented to unveil the Roll of Honour which has been erected at the Institution of Civil Engineers to the memory of its members and students who lost their lives in the war. The ceremony will take place at 4 p.m. on Friday, October 27.

Proposed Institute of Paint and Varnish Technologists.

It has been decided by members of the Oil and Colour Chemists' Association and the Paint and Varnish Society to take steps to form the Institution of Paint and Varnish Technologists. One of the activities of the new body will be the prosecution of organised research, apart from that which is conducted in private laboratories.

R.I.B.A. Archibald Dawnay Scholarships.

Owing to Mr. C. S. White, of the Architectural Association School of Architecture, being unable to take up his R.I.B.A. Archibald Dawnay Scholarship, a fresh award has been made in favour of Mr. C. H. Hutton, of the Liverpool University School of Architecture. The Scholarship, which is £25 per year for two years in value, is intended to foster the study of advanced construction

The London Society.

The following lectures have been arranged in connection with the London Society for the season 1922–1923:—November 10, 1922.—(Special arrangements are being made for this meeting, which will be announced later); December 8, 1922.—Mr. Herbert A. Cox. Subject: "London Before the Great Fire and Now"; January 12, 1923.—Mr. J. P. Orr. Subject: "The Transport and Open Space Problem in City Development"; February 9, 1923.—Mr. Mervyn Macartney. Subject: "Wren's London"; March 9, 1923.—Mr. Frank Pick. (Subject to be announced later); April 13, 1923.—City Government by Commission. (Reader to be announced later.)

Rheims Cathedral.

Sir Aston Webb will preside at the lecture to be given at the Royal Institute of British Architects on Thursday, November 16, at 8.30 p.m., by Sir Isambard Owen, on the Cathedral of Rheims. Sir Isambard made a study of the Cathedral during several years before the war, and has an interesting set of lantern slides illustrating it. The hall is being lent for the occasion, and a collection will be made on behalf of the British Empire Fund towards the restoration of this, the sister church of our Westminster Abbey.

The Society for the Protection of Ancient Buildings is giving its help in organising the appeal, as it approves the lines on which the repairs will be carried out by the French Government, which has offered to place a tablet in that portion of the church reconstructed by the offerings of English people as a memorial to our fallen and a tribute of affection for France.

Liverpool Architectural Society.

The 75th session of the Liverpool Architectural Society was opened last week. In the course of his presidential address, Major Gilbert Frazer urged that their architecture must receive a greater appreciation from those who were well able to appreciate it if they were only given a lead. The development of their town must receive a more intimate consideration from themselves. The heaviest attack possible must be made upon official architecture. Architecture and art were much a matter of opinion when the results were above criticism, but Liverpool had already suffered so much and had been sufficiently disfigured by the official architect that it was their duty to rescue the citizen from his hands in the future. Reviewing the past year, Major Frazer said that of large building works there had been little. There was nothing for the architect to shed tears of regret about in their housing schemes. Architects in Liverpool had played no part in the big housing schemes that lay on the outskirts of the town. It would have been better indeed for the poor ratepayer if their services had been sought, as it was obvious that the extraordinary overpayment that formed the subject of a recent inquiry would never have been possible had the policy defined by their society and laid before the Housing Committee by means of a deputation been accepted by that committee.

Old London Bridge Arch.

According to the *Daily Telegraph*, the Archbishop of Canterbury, in a letter to the Lord Mayor, says he has been a good deal disgusted by the contemplated destruction of the historic arch of the original London Bridge. Knowing the Lord Mayor's interest in matters historical and archæological, and especially in the old buildings of the City of London, he hopes that his influence may be exercised for the preservation of that historic record of the past, and of its place in English history.

The old London Bridge arch is now being demolished, but, subject to the approval of the City Corporation and the acceptance of the British Empire Exhibition authorities, it will be re-erected in the exhibition grounds at Wembley. It has been offered to the exhibition authorities by Mr. Tilden Smith, owner of the buildings which are being erected on the present site of the arch, and Sir Robert McAlpine & Sons, contractors. They will bear all the costs of conveyance and re-erection.

Detail of Carving, Port of London Authority Building.

MR. EDWIN COOPER, F.R.I.B.A., Architect.

Details of Carving. Port of London Authority Building. Tower Hill.

COMPETITION NEWS.

Ryde.

FOR THE TOWN COUNCIL.—Designs for a pavilion to be erected in the Esplanade Gardens, Ryde. (See advertisement in *The Builder* this week.)

Other Competitions.

Other competitions still open include the following (the dates given are, first the sending-in date, and second the issue of *The Builder* in which full particulars were given): Colombo Town Hall (Nov. 1, July 14); Labour Saving Bungalow (Nov. 1, Aug. 7); *Chicago Tribune* Building (Nov. 1, Sept. 15); Birkenhead War Memorial (Dec. 29, Sept. 15); Hospital in America (Jan. 15, 1923, Sept. 29); Port Said War Memorial (March 31, 1923, Sept. 29); A. and S.A.P.U. Essay (Oct. 31, Sept. 29); Old Cranleighan Cricket Pavilion (Oct. 6).

CORRESPONDENCE.

Bungalows.

SIR,—Your issue for October 6 was most interesting and informative on the subject of bungalows, but as for the past twenty years I have told candidates for small houses that bungalows cost more than two-floor arrangements I was taken aback at being instructed in the exact opposite by the writer who explores that topic in your pages.

He actually claims that the bungalow effects a saving in foundations by reducing the necessary spread under walls! No one could surely make such a statement who had had experience of the facts. The foot run of foundations in a bungalow is nearly twice that of a two-floor plan; the off-sets of footings and concrete (if any) is determined by the by-laws or by local custom; the reduction of a few hundred pounds in weight per superficial foot of area of spread does not come into consideration; the depth of foundations is the same and the thicknesses of walls substantially the same in both cases. The foundations of a bungalow, that is to say, cost nearly twice as much as those necessary for a two-floor house. The roof costs more than twice as much because, besides being double the area, it is either wider in its spans or complicated with valleys.

Your contributor further says that a ground floor of light joists (5 in. by 2 in.) on sleeper walls, or a solid floor on 4 in. of screeded concrete laid on 4 in. or 6 in. of dry rubbish, costs less than suspended floors of heavier joists. The only answer I have to this is—"No, it does not." In addition to this contradiction it may be pointed out that only a portion of the first floor would call for deep joists, and that the bungalow arrangement doubles the quantity of ceiling joists—a consideration which cannot be overlooked in any discussion of saving on the omission of a first floor. Your writer is entitled to say that the cost of the staircase is saved, but surely this saving is more than absorbed by the extended passage-ways of a bungalow, each superficial foot of which involves corresponding measures of roof and costly ground flooring? The runs of drains are increased in the one-floor plan, and the number of chimneys with attendant stalks above the roof is nearly doubled and the cost, surely, more than doubled.

The foregoing are surely plain facts. They have seemed to me so obvious that I have never taken measurements or made calculations to test them. Your contributor would produce matter of great interest if he were to support his statements by actual measurements of quantities and summaries of cost, and it is due from him to produce such evidence or to qualify assertions which are contrary to experience.

Apart from questions of fact I find myself in opposition to many of the views expressed by your contributor. The special conveniences of service offered by a bungalow is a mere gloss—a chimera. It is, in fact, negligible, but even when it is recognised many people consider that the convenience to the servant of being able to carry bedroom slops across the entrance hall and past the drawing-room, instead of being put to the trouble of going upstairs to carry them half the distance, is overbalanced by the inconvenience to everyone except the servant. The game of puss-in-the-corner played by the host behind the bathroom door and the visitor in course of being smuggled from the drawing-room is apt to lose its zest after a few years; and your contributor has overlooked the two chief objections to ground-floor bedrooms in days when every man and woman of healthy mind and body lives with open windows. The first is the intolerable nuisance of the frank publicity of ground floor bedrooms: neither the people outside in the garden nor the persons within can for a moment forget that each is liable to see or to be seen. The second is the very natural dislike in women to sleeping, or allowing young children to sleep, in rooms which a cat, dog, horse, cow, drunkard, madman or ill-disposed ruffian may at any hour partly or wholly invade.

Finally, I observe your contributor offering as a chief objection to bungalows the one quality which makes me regret it is my duty to advise people not to build them. He considers that they are unlovely and that the two-floor houselet offers better opportunities for expressive design. My view is that the one-floor plan is always satisfactory to deal with, while to design a small two-floor cheap house with all the by-laws of the L.G.B. heaped on its shoulders is one of the most thankless and dispiriting of tasks. In my experience the public favours bungalows because they are "pretty"; bungalows also have a sentimental appeal of simplicity and snugness—a "nest" quality which we can all feel. For the rest they are, surely, the most inconvenient and most costly sorts of dwellings.

I think if your contributor would support his assertions with figures and citations it would be a matter of great interest to others besides the present writer, who—until he is proved to be right—begs leave to veil his identity.

"DANDO."

SIR,—Surely "A.R.I.B.A." is in error when he states in his article in your issue for October 6 that "like for like, accommodation for accommodation and material for material certain definite economies are effected" in favour of the bungalow. With the exception of the staircase space the same accommodation covers double the area if on one floor than it would on two, and therefore requires double the roof and double the foundations. The minimum wall of 9 in. with 18 in. footings is the same for one or two stories, and the roof will be the same construction whatever number of stories covered.

In very small houses the staircase space is so large a proportion of the whole that it may compensate for extra cost of roof and foundations, but in anything larger there can be no doubt that the bungalow is the more costly arrangement. Are not the real advantages of the bungalow, the saving in labour in working, as rightly pointed out by "A.R.I.B.A.," and that touch of romance about a bungalow that allows of a less pretentious and less costly style of living without loss of caste, with, of course, a saving in initial cost if the more flimsy construction to which the bungalow lends itself, not "like for like, material for material," is adopted?

One is struck, in examining the bungalow plans you give, with how few show any endeavour to separate decently the bedrooms from the living-rooms. If I had to pass through two living-rooms to get from my bedroom to the bathroom I should not consider the architect exonerated because he had succeeded in making the exterior look like a glorified pottery oven. Surely a tolerable degree of convenience is the first essential of good domestic planning.

Eastham. FRANK GRAY WALLIS.

[We submitted the above letters to our contributor, "A.R.I.B.A.," and have received the following reply:—

The greater ease of maintenance which the bungalow offers is applicable for the most part only to the small bungalow run with little or no outside domestic help. But, again, your correspondents ignore the claim which I make for the bungalow type, and that is the simpler standard of life which it implies. Finally, I still maintain that it is difficult to design a bungalow in the best English traditions of domestic architecture, since there is no tradition for bungalows in this country; it is, therefore, often difficult to design in harmony with the surroundings. My experience does not appear to be identical with that of your correspondent. On a foot super basis I find the two-story dwelling working out at about £1 4s. per foot super, and a bungalow at 16s. 5d. A large factor in this difference, for which your correspondents make no allowance, is the greater ease in erection. My experience is that most country builders—many of whom work preferably without quantities—will give a more favourable price for the one-story dwelling on this account.]

The Housing Problem.

SIR,—The leading article in your issue for the 6th inst. states that "the speculating builders . . . . . have sounded the critical note and aired their views." I should be glad to learn when and where the speculating builder has expressed his views on the subject. One of the amusing aspects of the whole affair is that the only people really capable of solving the problem are about the only people who never write or speak publicly about it. The article further remarks that "when asked to commence building it appears he (the speculating builder) prefers to wait until houses are so demonstrably profitable that he takes no risk." A more absurd misstatement of the true facts could not be made. Within a mile of my office there are six separate builders erecting houses for sale to purchasers who have not materialised up to the present, and most districts have had more plans submitted to the local councils during the last few meetings than were submitted before the war.

Perhaps, however, the writer of the article was thinking of "building speculators," not "speculating builders."

Thames Ditton. B. A. N. KEMP.

[In our leading article on April 21 we commented on the criticisms of speculative builders, which were being discussed in the public Press. We do not blame the speculative builder or anyone for postponing building operations until economic conditions are more favourable; an economic law which is so obvious does not need any defence. It is the impression which is conveyed to the layman which matters, and we regret that the general impression of the criticisms from builders and speculative builders appears to be that the broad conception of housing as an ideal is an affectation and consequently unpractical. We had not thought it possible to make a verbal distinction between "speculators," but if we adopt the expression "independent builders," as suggested by Mr. Walter Cook, we are not any nearer to the main problem of how to avoid lapsing into or inheriting pre-war housing conditions. There is, no doubt, a certain amount of independent house building going on, but the evidence available, including the recent statement of the National Federation of House Builders, indicates that there is not only an appalling shortage of houses but that economic conditions are unfavourable for building houses.—ED.]

New Course in Structural Mechanics.

SIR,—Mr. Ewart Andrews is prepared to give an advanced course of lectures on Tuesdays from 7 to 9 p.m. at the Central School of Arts and Crafts if two or three more students apply. This should appeal to all young architects who wish to study this important subject more deeply. The elementary course which covers rather more than the requirements of the R.I.B.A. Intermediate Examination is held at the same time.

S. B. CAULFIELD.

Query.

A correspondent would like to know whether any Aquaria have been constructed in this country in recent years prior to 1922.

MEETINGS.

FRIDAY, *October* 20.

A. and S. A. P. U.—Smoking Concert at 284, Strand, 7 p.m. (Saturday, Oct. 21, Visit to Sir John Soane's Museum, 2 p.m.)

TUESDAY, *October* 24.

Liverpool Architectural Society.—Mr. E. P. Hinde on "Liverpool Architectural Society (Incorporated): Its Origin and History." At 13, Harrington-street.

THE PORT OF LONDON NEW BUILDING.

The completion, upon the historic site of Tower Hill, of this notable building, which was formally opened by the Prime Minister, The Right Honourable David Lloyd George, O.M., on Tuesday last, is a memorable event. It signifies not only the great development of London as a port, which has been brought about by the wise consolidation of the private and conflicting interests which controlled the numerous dock undertakings prior to the establishment by Parliament, in 1908, of The Port of London Authority, "for the purpose of administering and improving the port," but it also indicates a welcome tendency on the part of public authorities to recognise more fully the effectiveness of fine architecture in increasing the esteem and confidence of the public in great business concerns and their undertakings.

It is a matter of general congratulation and a happy augury for the future of architecture that two such great administrative bodies as the London County Council and the Port of London Authority should have adopted an enlightened view of their responsibilities in the matter of providing themselves with headquarters in which their business could be transacted not only in the most efficient manner but under conditions and in an environment which must necessarily redound to their credit, and add dignity and beauty to the every-day life of their employees and of the public generally.

In announcing the result of the great competition for this important work in 1912, we remarked, referring to Mr. Edwin Cooper's drawings, that "there can be no question that the best design has been chosen, whether from the point of view of the plan, which is masterly and should, we imagine, need little or nothing in the way of modification, or of architectural treatment, which is dignified and logical." We added, "in our opinion, the scheme was one which would, when completed, be worthy of any city in the world."

An inspection of the completed building fully confirms the opinion we formed of the merits of the design, and we would now go further, and say with but little reservation that this building, with its incomparable plan and original and imaginative treatment, its scholarly treatment and selection of detail, together with its wealth of fine material and craftsmanship, and in which, moreover, so high a standard of artistic and intellectual attainment is manifest throughout, not only must be at once placed in the very forefront of modern architectural achievement but may without impropriety be deemed not unworthy to rank with some of the great works of the Renaissance of similar scale. This may appear a somewhat bold pronouncement, but it is made advisedly after due consideration of all the circumstances and difficulties necessarily involved in the successful design and erection of a great building which, as well as requiring a monumental character, must also be perfectly adapted for everyday use and requirements.

In arriving at a just appreciation of the respective merits of ancient and modern buildings the purposes which they are destined to fulfil must be taken into consideration, and it must also be borne in mind that the requirements of to-day are infinitely more complex and difficult to meet in a satisfactory architectural fashion than was the case formerly, say, in the design of a great Renaissance palace, where convenience and utility, as now understood, counted really for very little, the desire being very largely to display the power and munificence of the important personage for whom it was to be built.

When, therefore, we find a great modern building in which formidable difficulties have been overcome, and every practical requirement perfectly met, and, moreover, in such a manner as to have secured fine architectural results, the least that can be done is fully to recognise the ability of the designer and to award him the unstinted praise he has well deserved. Such an attitude of mind, if more generally assumed, would do much to encourage our designers and to advance the art of architecture in the estimation of the public.

The exterior of the building, with the exception of the granite plinth, is of Portland stone, said to be obtained from the identical quarries opened up by Sir Christopher Wren. The external design is, first and foremost, a logical and monumental expression of the plan and the purpose of the building. The sides of the building face comparatively narrow and unimportant streets, and at the back what is now a fairly large open space is, apparently, to be built upon. It was, therefore, only in the frontage to Trinity-square and the immediately adjoining angles that the possibility was afforded of creating an arresting architectural effect. Here, then, the architect has concentrated all the great resources at his disposal in a forcible appeal to the imagination. That he has succeeded in producing a noble and impressive effect few will care to deny, although all will not be prepared to approve unreservedly the manner in which it has been obtained. That, perhaps, could scarcely be expected.

Attention is at once drawn to the great scale of this elevation. Approached by a wide flight of steps, and some 3 ft. above the pavement, is the great portico of the Corinthian order, with its four fluted and cabled columns and wide panelled piers, flanked by pilasters reinforcing each end. The cornice of the entablature is no less than 54 ft. above the pavement, and the columns themselves are 40 ft. in height. The entablature is surmounted by a balustrated attic story, and above all is the great tower rising to a height of about 170 ft. above the ground. The portico is 12 ft. deep, and in the back wall are five doorways with two tiers of windows above. The projecting pavilions at the Trinity-square end of the elevations to Muscovy-street and Savage-gardens respectively are linked up with and really form part of the upper stages of the central composition. They are of rusticated masonry, 32 ft. wide, with deep recesses, in which are Corinthian columns identical with those of the portico. The entablature and attic story are at the same level as in the centre, and above this again is a secondary attic, finished with a fluted frieze, bold flat bandcourse and coping, all of which are carried to the centre, forming a wide square base for the tower, the front of which is vertically over the back wall of the portico.

Between the columns on the ground floor level of the west pavilion is a seated male figure of "Commerce," holding the scales of Trade, the basket of Merchandise, and the lamp of Truth. In the corresponding pavilion in Savage-gardens is a similar symbolical figure of "Navigation," with one hand on a steering wheel, the other grasping a chart; her foot rests on the globe, and around her are symbols of shipping. The tower itself is, of course, the most daring and original feature of the whole building. It is an impressive and romantic essay in tower design, a great architectural adventure, boldly undertaken and brilliantly achieved. That it will be challenged is certain; it is too provocative to escape criticism, but we believe that eventually it will be recognised as a satisfactory solution of a difficult artistic problem. The tower, which is pyramidal in character, consists of a wide square podium or base, extending the full width of the portico below, with a decorative frieze, cornice, and low tabling above, upon which, set some distance back, is a plinth supporting the principal stage of the composition. This takes the form of a square tower, pierced on the front and back by lofty niches of semicircular plan, with semicircular arched heads and hemispherical panelled vaults. The arches spring from a square fluted and moulded impost, which is continued across the wide panelled piers, with flanking pilasters, and around the inside of the niches where it is supported by free standing Corinthian columns. The other two sides have projecting portico-like features, with square Corinthian pilasters supporting the impost, parapet and vase terminals over. Above the springing of the niches are decorated spandrels, and the upper part of the piers have raised square panels. The principal stage is finished with a cornice and parapet, which break forward at the angles, which are surmounted by terminals. The whole composition terminates in two diminishing square stages having friezes, cornices and bands. The lower stage is relieved by three narrow openings in the centre of each side, and the top of the upper stage is enriched with a continuous frieze of swag ornament. In the front niche, standing upon a decorative pedestal, is a magnificent figure of "Father Thames," of heroic proportions. In the recesses upon the other two sides, and boldly projecting from them, are great groups of sculpture.

The group on the west of the tower symbolises "Exportation," and consists of a galleon drawn by sea horses and steered by "Prowess," a male winged figure. The eastern group symbolises "Produce"; oxen are here drawing the chariot, on which stands a winged female figure, "The Triumph of Agriculture," with a flaming torch in her hand; "Husbandry," equipped with agricultural implements, leads the oxen.

The effective clean-cut outline and details of the tower, the intense shadows in the deep niches, with the brilliant streaks of light between the columns at the back of them, the bold outlines of the side groups of sculpture, silhouetted against the sky, together with the narrow black voids in the upper part, combine to make up a remarkable *tout ensemble*.

The back and side elevations to Seething-lane, Pepys-street, Muscovy-street, and Savage-gardens are identical, except for the difference in length and the introduction in the longer frontages of a projecting bay carried up to just above the sill level of the second floor windows. The length of the frontages in Seething-lane and Pepys-street is 246 ft., and in the other two 160 ft.

All the pavilions have doorways between and engaged with the columns. The entablature of the principal front is continued at the same height on all the sides. The elevations between the pavilions are of rusticated masonry with plain window openings, and rely for effect upon the great cornice and the shadows of the balconies to the second floor windows. An attic above the main cornice marks the third-floor level, and above are the green-slated sides of the mansard roof, with dormer windows. The pavilions are accentuated by an additional story adorned with central shields, panels, and festoons, and the doorways and windows in them are also appropriately enriched. The area lighting the basement is enclosed with a low granite parapet with piers at intervals, supporting lamp standards with railings between.

The building, with its courts, covers an area of about 6,300 sq. yds., and is arranged in the form of a perfect square with sides nearly 250 ft. long, facing the cardinal points. At the south-east, facing Trinity-square, however, an angle is cut off at 45 deg. for a width of about 120 ft., leaving two shorter sides with a length of 160 ft. on the south and east. These and the longer sides consist of blocks of about 48 ft. in depth, forming a hollow square on plan, with the great circular hall (the rotunda), about 112 ft. diameter, in the exact centre.

The great portico, under which is the principal entrance, extends the whole width of the angular face, and is carried up through

three stories to the tops of the capitals of the columns, above which are the entablature and balustrade, surmounted by the crowning feature, the great tower. The buildings forming the sides of the square are five stories high exclusive of the basement, and have pavilions on the south-west, north-west and north-east corners, with entrance doorways on each external face at the ground-floor level. The pavilions are 32 ft. wide, and project 6 ft. 6 in. from the main walls.

Diagonal corridors give direct access from these three subsidiary entrances to the rotunda, and they are intersected by the main corridors which are carried entirely through the centres of the blocks forming the sides of the square until they communicate with the vestibule between the portico and the great entrance hall. Further and even more direct communication with the rotunda is effected by four short corridors and lobbies, two of them in the centre of the side blocks and the other two most ingeniously linked up with the entrance hall. The freedom and directness of communication thus established between every part of the ground-floor is an arresting feature of an exceptionally skilful plan. The circular form of the rotunda contained in the hollow square formed by the side blocks affords three spacious courts of spandrel-shape, intersected on the ground-floor only by the short diagonal corridors of one story in height. Ample light and ventilation is thus obtained for all the apartments inside the square on the ground-floor and basement as well as for the rotunda itself, while above the level of the corridors and the top of the dome of the rotunda there is one large open air and lighting space.

A wide flight of six steps, rising 3 ft. above the pavement, leads to the floor level of the portico, some 63 ft. long and about 12 ft. deep, divided into five bays by four great columns, 13 ft. centre to centre, and finishing at each end with solid piers and pilasters. The back of the portico has five doorways into the vestibule, with pilasters between them and two tiers of windows above. The vestibule, which is one story in height with a gallery over, forming a sort of clerestory to the hall, is rather longer than the portico, and has well-managed angle intersections with the main corridors at each end. Crossing the vestibule, the first sight of the great entrance hall gives a definite and lasting impression of the fine scale, imaginative but restrained treatment, and sustained scholarly taste which distinguishes the whole of the interior of the building.

The entrance hall is a noble apartment, about 65 ft. long and 25 ft. wide, carried up to the underside of the second floor. The sides are divided up into five bays with wide plain pilasters extending from the floor to the ceiling, the upper parts being emphasised with the trophy-like symbolic emblems carved in low relief. At each end of the hall are two internal porches of the Doric order, with square fluted pilasters and regular entablatures, through which are seen apsidal terminations with openings into the corridors and staircase halls. The entablature of the porches is continued entirely round the hall, dividing it into two principal stages, which are again subdivided by mouldings and enriched bands. At the ends and on one side the upper stages have wide panels with delicately enriched margins, while on the other side is the open gallery with bronze balustrades, a valuable feature of the design.

The five doorways opening directly into the rotunda are of well-studied design with appropriate carved enrichments. The ceiling is of pure white plaster, with panelled beams fully moulded and highly enriched cornices forming deep sunk panels arranged in one long centre panel, and two shorter coffered panels at the two ends. The whole of the work up to the ceiling is executed in polished Subiaco marble obtained from quarries some 30 miles south of Rome. It is said by Pliny to resemble ivory; it has, at any rate, a warm golden gleam and a quiet sumptuous effect which makes it eminently suitable for all internal work where a polished surface is required. It has been used in this way throughout the building in columns, pilasters, panelling, and staircases. The same material unpolished is used in the floors, with borders and panels of Zola, a Roman limestone of dark brownish-grey colour.

Detail of Carving, Port of London Authority Building.
MR. EDWIN COOPER, F.R.I.B.A., Architect.

The impression upon entering the rotunda —the heart and vital centre of the building— is of the vastness of this great domed hall. This is not to be wondered at, for the internal diameter is about 108 ft.—some 40 ft. less than the Pantheon, and approximately the same as St. Paul's. With this in mind, at first sight the dome appears somewhat to overpower the supports; upon repeated visits, however, the first impression is corrected, and it is realised that the dome, being merely a monolithic structure of ferro-concrete, exerts no thrust whatever upon the walls, and consequently, a lighter and more elegant treatment of the lower part is not only permissible but entirely logical. Moreover, greater height than was necessary for the purposes of the building would have been mere pretension and destructive of the general scale of the whole interior. The rotunda is admirably designed with a Corinthian order 24 ft. high, with a plain story above, from which springs the slightly segmental dome, at a height of about 28 ft. from the floor rising to some 60 ft. From the springing to the lantern the dome is coffered with moulded and enriched octagonal panels, diminishing in size as they approach the richly-modelled ribs of the great lantern with its radiating lights. At a height of 15 ft., a fluted band is carried entirely round the walls, forming a secondary frieze, which is decorated with moulded and enriched panels above the doorways and windows, and contains naval emblems and attributes carved in low relief; those over the four principal doorways have medallion portraits of Cook, Drake, Nelson and Hawke.

Four principal doorways, flanked with coupled pilasters and disposed on the main axes of the building, project some 3 ft. from the main wall and divide the circumference of the hall into four quadrants, which in turn are divided into five recessed bays by four pairs of coupled columns. In the centres of the quadrants are other doorways to the diagonal corridors which lead directly to the subsidiary entrances at the three external angles of the building. Each of the other twelve recesses has windows to the lighting courts. The most charming vistas are afforded through all the doorways, and the drawing we publish of one of the shorter ones will sufficiently indicate the originality and refinement of the detail throughout. The walls, pilasters and columns are of polished Subiaco marble, the columns being monoliths, 16 ft. 6 in. high, with beautifully-detailed and carved Corinthian capitals. The plaster entablature is regular and fully enriched with an original and effective frieze. The floor for a width of about 10 ft. from the columns is of unpolished Subiaco marble, with bands and borders of Zola, and the remainder of the floor is of wood blocks.

A space in the centre of the hall, about 20 ft. diameter, is screened off by a parapet wall upon which standard lamps are to be placed, and contains a circular staircase leading to the strong-rooms below. An interesting feature of the hall will be a monumental clock standing on a circular pedestal with Corinthian columns and entablature, and the four-faced clock above on a graceful tripod-like support, the whole rising to a height of 18 or 20 ft. When the rotunda is completely fitted it will have four rings of clerks' desks, with gangways from outside to the centre, the outside desk having a length of about 260 ft., and beyond that is the great circular space for the public. A vast amount of business connected with the Port rates will be transacted here, and it is difficult to imagine a more convenient and stately arrangement for the purpose. When completed it is probable that this rotunda will be universally regarded as one of the most efficient and imposing business offices in existence.

The ingenuity and beauty of the plan, as such, is apparent upon examining the drawings, but only in the building itself is the charm of the whole interior fully revealed. There are wonderful vistas terminated and accentuated in exactly the right places and in the most appropriate and tasteful manner, studied perspective effects, fascinating distances, the gleam of marble, quietude of colour, varied materials, and exquisite craftsmanship, all magically assembled and wrought by a sure hand and mind into one harmonious and entirely satisfactory composition.

The two principal staircases are situated at each end of the vestibule and entrance hall, with direct access from both, and their planning and detail leave nothing to be desired. The material throughout is polished Subiaco marble. Four plain square piers, with delicately-moulded and enriched capitals, support three flights of 12 steps and landings, with solid strings panelled and enriched with guilloche ornament and having iron balustrades and bronze handrails. The staircases are well lighted by windows at every floor and with a shallow domed top light. A particularly happy feature is the extension of the landings upon the principal floor by means of semi-circular apses, penetrated in the centre by smaller apses masking unimportant doorways, the principal doorways being on the sides of the larger apses. The difficulties involved in the satisfactory symmetrical adjustment of the planning almost invariably arising at these points have been overcome with considerable judgment, and the decora-

tive treatment is equally satisfactory. In the apse of the staircase at the south angle, the most important approach to the board-room, there are medallion portraits of the King and Queen over the side doorways, and the arms of the Port of London Authority over the central one. Rich colour has here been boldly but judiciously used to direct attention to these medallions and the fine decorative plaster work surrounding them and upon the ceiling. This note of colour has a fascinating effect at the head of the stairs.

The subsidiary staircases are placed just where they should be, midway between the corner entrances and the rotunda. They are semicircular in plan, and are well designed and detailed. These staircases are approached from little octagonal entrance halls through small lobbies with apsidal ends. The planning and architectural treatment of these entrance halls, lobbies, corridors, and staircases can only be fully appreciated by inspection of the building itself. A very happy example is the gallery across the principal front, with openings into the upper part of the entrance hall, where plain marble columns catch the full light from the windows and reflect it from their surfaces. Another point of interest is in the centre of the members' corridor which assumes the form of a little octagonal hall, with a low plaster dome finished with an enriched circular panel surrounded by swags in low relief. A striking feature of the arrangement of the offices in the side blocks is the omission of enclosing walls to the central corridors, their places being taken by piers with counters and screens between, the offices on either side being open. An effect of spaciousness is thus obtained, and the possibilities of architectural treatment greatly enhanced, while other practical advantages are improved lighting, freer circulation of air, and greater facilities for supervision.

The four blocks of buildings, forming the sides of the great square, are lighted from the adjoining streets and the inner courts. The general plan of the side ground-floor blocks is adhered to on the floors above. The Dock and Warehouse Department, the Port Rates and the Commercial Departments, the Registrar's Department, and the Land and Estate Departments are located in the various blocks on the ground floor. On the first floor are the Chief Accountant's Department, the Comptroller's Stores Department, and the Solicitor's Department. The second floor, with the exception of a portion occupied by the General Manager's Department, is devoted to committee rooms and members' public and private rooms. The Medical Officer's Department is in the east block of the third floor, and the whole of the remainder is devoted to various offices. The fourth floor is allocated to the Engineer's Department and the River Department. In the south block of the basement are the telephone and telegraph departments; in the east block is the internal postal department.

The second floor, containing the principal rooms, is, of course, with the exception of the ground floor, the most interesting from an architectural standpoint. The board-room, situated over the entrance hall, is possibly the most beautiful and interesting room in the building. It is 60 ft. long, 38 ft. wide and 30 ft. high, with a floor of polished oak. The whole of the work up to the top of the cornice of the entablature of the Corinthian order employed is, with the exception of the capitals of the pilasters and superimposed adornments (which are in lime-wood), executed in rich brown English and French walnut. Springing from the entablature is a deep white plaster cove with enriched ribs and panels over the pilasters below, carried up until they meet with the great plaster cornice of the ceiling. On each side of the room the cove is penetrated by five lunettes with glazed copper grilles, which, in conjunction with the five recessed windows on the principal front, light the room most effectively and display its fine qualities to the greatest advantage. The walls are divided into five bays on the sides and three bays at the ends by coupled fluted and reeded pilasters with long plain moulded panels between them, the upper parts of the panels having superimposed ornaments of wreaths and appropriate attributes, carved in lime-wood. The five windows on the principal front are deeply recessed with panelled jambs, and afford pleasant views across Trinity-square. In the centre of the opposite side is a doorway with finely-carved architraves, flanking pilasters, consoles, frieze, and cornice, above which is a wide raised panel with enriched mouldings. The remaining four bays are treated in the same manner except that the spaces between the architraves are filled with superbly grained and matched French walnut panels. The arrangement of the ends is identical with the sides, but the central doorways are accentuated by superimposed carved pendants of fruit and flowers at the sides, and the panels over the doors contain portrait medallions upon cartouches, with naval trophies at the sides, filling up the panels. The portraits are respectively of Chaucer, once a servant of the Port, and Pepys. The entablature is fully moulded and enriched, the frieze having carved leaf ornament with wreaths over the pilasters.

The plaster ceiling is finely designed and decorated with richly-moulded cornice ribs and panels. The great oblong central panel with semicircular ends is left plain for decorative historical paintings. From the ceiling are suspended two great chandeliers of crystal glass. The material and workmanship throughout are of admirable quality, and the carving of the capitals of the pilasters and ornamental details is exquisitely finished; very rarely, we should imagine, has such a high standard of perfection been attained in work of this kind. The colour effect, even now presented, with the lime-wood adornments already toning down to the desired harmony with the rich brown of the walnut, is exceedingly beautiful. When, however, the ceiling receives its painted decoration and the room is completely furnished and carpeted it will indeed be a distinguished apartment in every way appropriate and worthy of the high purpose it is intended to fulfil.

On the south front of the south block are the Chairman's and the Vice-Chairman's rooms, and on the north the Deputation Room, Library, and Members' Cloak-room. The Chairman's room is a delightful apartment. It has a double square, 34 ft. by 17 ft. The order used is a rich Corinthian one, extending from floor to ceiling, and with the exception of the capitals and adornments of lime-wood is carried out entirely in French walnut. The quarter panels between the fluted pilasters and in the doors are of the finest quality obtainable. The introduction of free columns forming an alcove at one end of the room is a happy feature of the design. The architrave of the entablature is plain, the frieze pulvinated and richly carved with oak leaves and bands, and the cornice is of the regular modillion type, freely enriched. The chimney-piece in the alcove at the end of the room is of restrained design, with delicately-carved consoles, frieze, and cornice, and is furnished with a polished-steel grate and surrounds of Pavonazza marble; it contrasts well with the richness of the upper part, which is treated with a sunk circular panel surrounded by a carved border enclosed in a square panel flanked at the sides and surmounted with adornments in carved lime-wood. These, and the similar pendants of fruit and foliage flanking the panels round the room, are remarkable for the extraordinary excellence of their technique and the light and fanciful beauty of their design. The ceiling is of white plaster, and divided up by shallow moulded beams with enriched soffits into a central circular panel, left plain for future paintings, spandrels, and square panels containing medallions of Neptune, Mars, Ceres, and Diana, the whole modelled with extreme delicacy. The room is well lighted by three windows on the south side.

The Reception Room and Private Secretary's Room, part of the Chairman's suite, are all in oak, each having its appropriate individual character and charm. The Vice-Chairman's room is another finished study in internal design. The general style may be described as French Renaissance, but it is handled in a free and individual manner. The room is panelled in oak up to the springing of the original and beautiful coved ceiling of oblong form, and adorned with modelled symbolical emblems and enrichments. The fireplace is of striking design with tapering sunk and moulded pilasters, terminating with ram's-head capitals, and with a carved frieze and cornice; above is a panel surmounted with an escutcheon and foliage, flanked by pilasters. The room is lighted by three side windows and has a polished oak floor. The oak carving over the fireplace and on the walls is exceedingly well executed.

The space at our disposal will not admit of much more than a reference to many rooms upon this floor, although all are worthy of detailed study and description. The Members' Library on the north side is oak panelled, with plaster entablature and ceiling, the style adopted being Georgian. The four committee rooms on the south of the centre are an extremely interesting series of rooms, each treated with one of the various classical orders arranged progressively. The first is early Doric, the next later Doric, the third Ionic, and the fourth Corinthian. All are in oak, with enriched plaster ceiling.

The northern part of the west block contains the Members' Dining and Reading Rooms. The latter is a fine apartment about 50 ft. long, with a semicircular alcove at one end for writing. The alcove is partially cut off from the rest of the room by wide projecting oak pilasters. The walls, entirely lined with oak, are divided up into panels by similar pilasters adorned with medallion portraits of Watt, Hogarth, Newton, Milton, Cromwell, Harvey, Inigo Jones, Drake, Whittington, and Wilberforce. Above the cornice is a coved plaster ceiling with panels and enrichments.

The Members' Dining Room, about 50 ft. long by 17 ft. wide, is admirably adapted for its purpose, and of satisfying shape and proportion. The length of the room is divided into bays by pilasters, and at the ends are alcoves, formed by coupled columns at one end and single coves at the other. The former alcove holds a small circular table and the other is for service, with a long table in the centre. The order used is Corinthian, with fluted columns and pilasters and regular entablature, all in oak. The ceiling is of plaster, panelled and enriched, with beams over the columns. The room contains a considerable amount of fine carved decoration by the same masterly hand employed in the board-room and the Chairman's room. It is lighted by four windows in the central part and one at each end. Not the least noticeable feature of the room is the design and detail of the hot-plate and carving-table, little items, but having their value in the total effect.

The building, indeed, is remarkable for the attention and judgment bestowed upon innumerable small items; the skilful arrangement of the cloak-rooms and lavatories and their fittings in the angle pavilions and elsewhere is a typical instance of the thoroughness observable throughout the work.

For a building of such magnitude and importance, and representative of the naval and industrial activities of a metropolis, we cannot agree that the site is fully worthy. Such a building would seem to have demanded for its location a prominent riverside site, and not a somewhat sequestered position behind a garden square. The site is undoubtedly a fine one, but not the most appropriate for this special purpose. But in all our big undertakings of this kind we as a nation are sadly lacking in the imaginative quality.

ROYAL INSTITUTE OF BRITISH ARCHITECTS

VISIT TO WESTMINSTER HALL.

A LARGE party of architects and several ladies attended the visit to Westminster Hall on Saturday last, and were conducted round the building by the Director of H.M. Office of Works, Sir Frank Baines, M.V.O., C.B.E., who, as chief of the Historic Buildings Branch, had devised and carried out the repairs to the structure made necessary by the excavations of the Death Watch Beetle (Xestobium Tessellatum).

On entering the Hall, the party passed across its north west corner and up the flight of stone steps to the Large Committee Room, noticing on the way the great lateral distortion of the northernmost truss, adjoining the gable. In the Committee Room, drawings and a model had been arranged for inspection, and, using the model to illustrate his statements, the Director gave a brief and lucid résumé of the history, structure, the decay and the repair of the roof. He also described the youthful adventure by which he became acquainted with the dangerous condition of the roof timbers. By unofficial permission of one of the old sailors who were formerly employed to clean and patch the roof, he had climbed their rackety tripod ladder to the summit of its projecting cantilever extension and ventured to disembark from it on to the great collar beam along which he walked by means of the tracery puncheons, until, arriving at the junction of the collar and the upper principal rafter, he discovered a cavity in the timbers from which he was able to detach a fragment perforated in all directions like a sponge.

The decay in this one joint suggested that other parts of the roof might be in a similar condition, and when the structure passed into his care the first use he made of his personal knowledge of the decay was to agitate for permission to apply the yearly grant for repairs to the purpose of a scaffold survey of some typical trusses in the roof. This survey has become historical since its publication as a magnificent report with hand-coloured plates and the incorporation of some part of it in a blue book dealing with the methods of repair. The report upon the damaged condition of the structure was regarded at first as highly coloured and of an alarmist character, some architects declaring that their own personal examination had led them to the opinion that the roof was in no serious danger and that money spent on its repair would be thrown away. These optimists were confronted, however, with the actual evidence of the serious extent of the beetle's depredations; the works of repair were found to be not only necessary, but urgent, and were commenced without undue delay.

So nearly had the time of the roof's collapse approached that between the time of the preliminary examination and the time when a particular principal could be shored up, a great stone corbel under the eastern wall post of No. 5 truss—counting from the north end of the Hall—was sheered off and only remained in position by the lateral kick of the arch rib pinning it to the wall. These corbels are massive blocks, some three feet in depth, and the fractures not only split the original carved stones, but spread to the mouldings and ashlar facings of Huddlestone stone adjoining the corbel. This fracture was undoubtedly caused by movements of the timbers of the truss, and though Sir Frank admitted that the time of its occurrence might have been coincident with vibration set up by preparations for the new works of repair, the trouble was deep-seated in the incredible state of decay of the timbers at their bearings one upon another and upon their supports. At the corbel itself the woodwork was eaten away until only the front portion of the wall post was bearing upon the stone at the worst possible point of application far out towards the free end of the cantilever.

At the wall top the old hammer beam had been eaten away until it no longer touched the wall top or the top of the wall-post. The various patches, billets and wedges that had been inserted since the seventeenth century were of the most trivial character; the defective end of the principal rafter being carried by from twelve to sixteen small separate fragments of wood. The real support was the great arch-rib which, though violently over-stressed and distorted in curvature and sprung laterally, was carrying the whole load of the truss with the precarious aid of the puncheons of ornamental tracery.

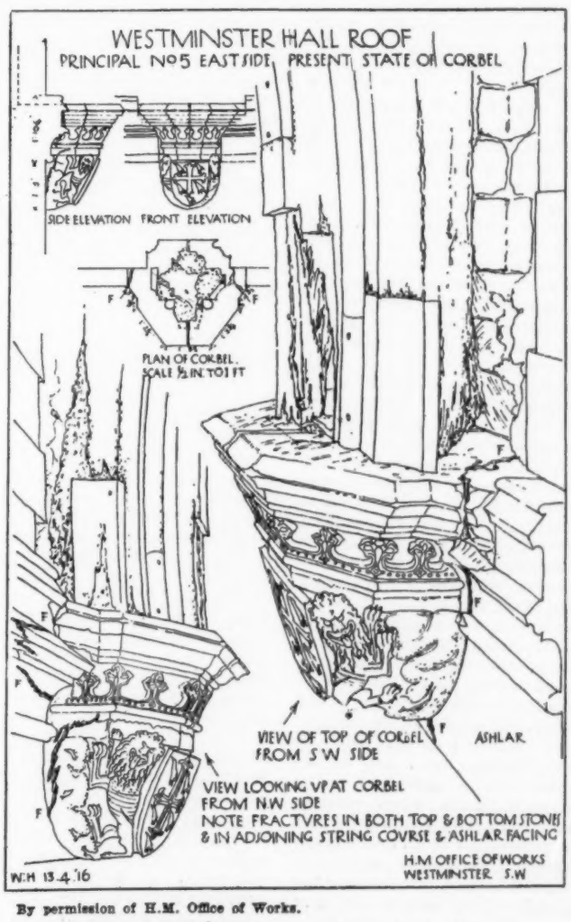
The failure of the corbel and the possibility of concussion due to air raids considered together demanded that immediate steps should be taken to support the free ends of the hammer beams, and these were shored up upon timber gantries at whose tops the carved angels of the hammer beams were supported in stout boxes filled with dry sand until such time as the repair of each truss could be put in hand. Two important criticisms had been directed against the proposed methods of repair, and Sir Frank dealt at some length with the subjects of them, explaining how the statics of the ancient system of construction had been affected by the shrinkage of the gigantic baulks, and how the use of steel had been forced upon him by his position as Conservator of Historic Buildings.

To preserve the original statical conditions of the ancient timber trusses as timber structure had been found impossible even by the early repairers in the seventeenth century, when wrought iron bolts had been inserted to bind the failing timbers together. The hammer beams had drooped into the Hall and the ridge beam had fallen to something like 18 ins. lower than its original position, except where it was held up on the gable walls with consequent distortion of the trusses next adjoining them. King Richard II's master carpenter, Hugh Herland, had produced a masterpiece in accordance with the best traditions of his time, but our position enabled us to see the details in which he had failed to make full allowance for shrinkage or for a factor of safety. Steel was introduced in the new work, because the original statical condition of the old roof as a wooden structure had not been preserved and it would be impossible to reinstate it (even if that were altogether desirable) without sacrificing a great deal of the genuine old timber, including the hammer beams and their magnificent carved angels.

To produce a new timber roof would have required oak timbers of scantlings at present unobtainable, and nothing far short of complete renewal could preserve the statical principle of the ancient roof as a structure entirely of wood.

Following the address, the party ascended the steel-framed stage at the south end of the Hall and examined the timbers and methods of repair in detail, but in spite of the explanation that had been given, several members still found it difficult to grasp the magnitude of the work and wished to know why a steel gantry was required and why the repairs had not preserved the old roof as a living structure with its original timbers performing their former mechanical functions.

The sizes and weights of the timbers and the great span so far exceed anything that we are in the habit of dealing with that only those who are familiar with the Hall by long use are in a position to realise to the full the nature of the problems affecting it. The timbers, which look sounder than ever now that they have been carefully repaired and their open joints and cracks made good, seem to casual inspection to be capable of supporting themselves for an indefinite period. The scale of the enormous roof is so perfectly adjusted that from the Hall floor a sense of lightness and buoyancy is conveyed and the three-ton hammer-posts seem to float on their angels' backs without allowing one to think for a moment of their hazardous equilibrium unless, as in the case of the Director of H.M. Office of Works, personal responsibility brings other considerations into play.


WESTMINSTER HALL ROOF
PRINCIPAL No 5 EAST SIDE PRESENT STATE OF CORBEL
SIDE ELEVATION
FRONT ELEVATION
PLAN OF CORBEL
SCALE ½ IN. TO 1 FT
VIEW OF TOP OF CORBEL FROM S.W. SIDE
ASHLAR
VIEW LOOKING UP AT CORBEL FROM N.W. SIDE
NOTE FRACTURES IN BOTH TOP & BOTTOM STONES & IN ADJOINING STRING COURSE & ASHLAR FACING
W.H. 13.4.16
H.M. OFFICE OF WORKS WESTMINSTER S.W.

By permission of H.M. Office of Works.

Corbel fractured by pressure from foot of truss.

THE MANCHESTER SOCIETY OF ARCHITECTS

PRESIDENTIAL ADDRESS.

MR. FRANCIS JONES, F.R.I.B.A., in the course of his presidential address before the first meeting of the Session of the Manchester Society of Architects, after a word of thanks for his election to that post, said the functions of an architects' society was divided into three parts—one part educational, one part artistic, and one material—to each of which must be added another element—the social element—if the blood of the society was to function properly.

Architectural Education.

During the past year the School of Architecture had been taken over entirely by the University, and the whole of the work would in future be carried on in one separate building under one general direction instead of in several buildings up and down the town and subject to different authorities who did not always see eye to eye—that complete School of Architecture was another ideal achieved. At the School of Art the Corporation had also organised a complete syllabus for those who were not taking the University courses. He felt they were very much in debt to the Corporation which, until the University instituted a Chair of Architecture, was entirely responsible for architectural education in Manchester; in his own experience the late Mr. Richard Glazier was untiring in his efforts to assist architectural students, and he hoped the Corporation would understand their motives in urging that the University should assume complete control of architectural students. They felt that in addition to the artistic and technical subjects the students' general education should be carried to a higher standard, and the proper architectural spirit could best be fostered in a self-contained school where the students all had similar interests and where they would learn as much from one another as from any other source. He hoped the University and the Corporation would still co-operate sufficiently to prevent wasteful overlapping.

He would say to all students, "Rejoice in your work and be happy in it." Their work was useful, and whether they made it enjoyable or otherwise depended upon themselves, but it was certain that the more they enjoyed it the better the work resulting would be. Students would indeed count themselves fortunate if they realised how hard and stony was the path of the architectural student of twenty years ago. He thought, also, the city would count itself fortunate perhaps twenty years' hence when it realised the higher standard of the buildings it would contain. That was, after all, their greatest ideal—to raise the general architectural standard and make the cities and towns the pride and the joy of those who dwelt in them. That would not, of course, be accomplished by mere attendance at the school of architecture—hard work and earnest endeavour were demanded from the architect all his days—but it did give everyone a chance, which he did not often get formerly. Too much used to depend on the office in which he was articled. Fortunate was the student of to-day. The Society would keep in touch with the University and see that the architectural studies were pursued on lines most advantageous to architecture—it was certainly through the Society that the School of Architecture had been founded, and it was up to the Society to see that the work was properly done.

He must mention the material side, too. The School needed funds. The Institute of Builders had shown a wonderful spirit in the matter and had subscribed £4,500 to the scheme; the architects had collected £600; and, in addition, about £5,000 had been left to the School by the wills of former members of the Society. But they must do more, and he appealed to them to subscribe liberally to the M.S.A. School of Architecture fund, and remember that they were not merely helping architectural education, but helping also to raise the architectural standard of the city in the near future.

Town Planning.

It was the Society's duty to watch the growth and development of the city and to shout—and shout loud—when such development was not being done on sound architectural lines. The voice of the Society should be looked for with respect by corporations and all concerned with building, town-planning, or similar subjects. There was that week a great Town-planning Conference being held in Manchester. Town-planning was no new art, but why did it lapse? Why were the inhabitants of Manchester and other manufacturing towns so totally unconscious of it eighty or ninety years ago? It was because they preferred riches and personal aggrandisement to the common good. Let not that charge be laid against the present generation. He was sorry the Society was not more intimately associated with the Town-planning Conference. Picture a Manchester to-day which had the town-planning spirit one hundred years ago, or even fifty years ago! Look at the modern suburbs left entirely to the mercies of the speculative builder—how different they might have been if they had been laid out in a comprehensive manner even twenty years ago!

The Society stood for the betterment of architecture and must not hide its light in a bushel; it must be a power in the city—an authority looked up to by everybody. It was their duty to enlighten all and sundry, and they had joined with the Institute of Builders and the Royal Institution in arranging public lectures at the University to that end—the more interest the public took in architecture the better the architecture would be. If the public demanded a higher standard they would assuredly get it. Architecture for architecture's sake must be the motto of the Society.

In town planning the Americans had showed both imagination and courage. They had the example of England before them, and in laying out their towns they had some knowledge of what the development in fifty years' time of modern expansion was likely to be. That experience was available in this country now, and he thought they were likely to take advantage of it in the future.

Unification and Registration.

On the material part of the architect's work he need not enlarge; but that part was not material only—to it belonged also the honour of the profession. They must see that architects were properly paid, and that clients were treated fairly, and that no corrupt practices occurred.

They were part of the R.I.B.A. and owed to it allegiance. The Institute did a great deal for them; the hard conscientious work done by the Council and Committees of the Institute could only be realised by those who had had the opportunity of seeing them working, and the Institute looked after the well-being of all branches of the profession.

They were, therefore, vitally interested in the Institute, at which something like a revolution occurred at the last General Election. Did they all quite understand why practically the whole of the members of the late Council—men who were leaders of the profession and who had served the Council faithfully for years—had not been re-elected? Some, perhaps, might have exceeded their term of usefulness on the Council, and some new men with fresh energy and new ideas were always needed, but surely some of the members of the old Council with their status and experience were the most useful men the Institute could possibly have to direct its affairs. If they wanted to improve an All-England cricket team they did not usually select eleven untried men (or 10 and the old captain) to play the next Test Match; or even if they did, they did not select 10 bowlers without regard to their abilities in other departments of the game. In the R.I.B.A. Council all the new members were bowlers—to bowl out unification. They might succeed in that, but whether they would be able to obtain the registration runs was another matter. The subject was of vital importance, and they must all think the matter out for themselves; it was a much greater question than the personnel of the Council for a particular year. It was the future of British architecture and of the profession.

Registration was, he thought, desired by most members of the profession—certainly it was the policy of the old Council and most certainly it was the declared objective of the new one. So far they were all agreed. Again, who should the controlling body be? Doubtless the R.I.B.A., and up to that point even they would, he thought, be in agreement. Then why those tears? Where did the canker gnaw? The ultimate goal of all seemed to be the same—a higher standard of modern architecture in England. Yet there were two parties at the Institute ready to tear each other's eyes out because, though they both wanted the same thing, they wanted to get it by different ways.

If they got registration, unification must follow; but it was almost, if not quite, impossible to get registration without unification in some form or other first. It was an established fact that one could not both eat one's cake and have it. One could have it before eating it, but one could not eat it before having it.

Registration only was no use to them—one could register anything, such as slaughter-houses, patent medicines, letters or plumbers; architects wanted education and registration, and if they had that someone must decide how much education should come before registration, which really meant there must be a general control. Who was to be that general control?—naturally one would say the R.I.B.A. But would a member of a body not allied to the R.I.B.A. agree to that? Or would a man who had practised as an architect for many years but was attached to no Society agree to it? Probably not. They must therefore get the other body and the unattached man to join the R.I.B.A. in some way or other. And that was the difficulty. Amongst practising architects not attached to the R.I.B.A. were many capable and efficient architects who would all be welcomed to the R.I.B.A., but there were also many who, although they had practised for many years, were neither capable nor efficient, and could not reach the standard worthy of registration. Those men had made their living for years by designing and erecting buildings, and no Government would pass a Bill which would debar them from carrying on their business. But the supply of new men of this type would cease on the day of passing of the Registration Bill: their ranks were filled from time to time by clerks of works, clerks from builders' offices, quantity surveyors, clerks from district council offices, and so on—all without architectural training—and that supply would continue to pour in men to practise in competition with those who had gone through a long course of training in the architectural school and architects' offices. The sooner that polluted supply was stopped at the source the better for the contents of the architectural reservoir from which the supply of buildings was obtained.

The cost of clearing the reservoir was the admission of the present doubtful supply until such time as the whole supply would have to pass through the filter beds, or, in other words, examinations. That must happen in any profession which had been an open one before it became a closed one. Before medical examinations were compulsory for that profession all sorts of people obtained a living, or part of their living, through giving medical advice, and when registration of doctors became compulsory all and sundry assumed the dignity of medical men. It was the same with the law. The sooner registration was accomplished the better for everybody—the better for the young architect materially; the better for the country architecturally.

After the address a vote of thanks to Mr. Jones was proposed by Professor Dickie, the senior Vice-President, seconded by Mr. W. S. Beaumont, the Honorary Secretary, and unanimously passed by acclamation.

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ILLUSTRATIONS.

Port of London Authority Building.

We illustrate this week the new building of the Port of London Authority, Tower Hill. Mr. Edwin Cooper, F.R.I.B.A., is the architect.

The contractors were Messrs. John Mowlem & Co., Ltd., and Mr. George A. Webster acted as quantity surveyor for the Authority. Messrs. E. P. Wells and Cocking were the consulting engineers (ferro-concrete). With regard to the external sculpture, the small scale sketches of the two groups and figure of Father Thames on the tower were prepared by the late Albert Hodge. These sketches were developed and finally modelled by Mr. C. L. J. Doman, R.B.S., Mr. Hodge's assistant; the two figures of Commerce and Navigation were the work of Mr. Doman, and the wood carving throughout the building was executed by Mr. George Haughton. Mr. Mack, the contractors' agent, had entire charge, with Mr. W. Le Marie as clerk of works.

The sub-contractors were: Internal stonework, pavings and subiaco marble, Messrs. J. Whitehead & Sons, Ltd.; plasterwork, Messrs. G. Rome & Co.; fibrous plaster, Messrs. F. de Jong & Co., Ltd.; heating, ventilation and kitchen equipment, Messrs. Mumford, Bailey & Preston; electric light and fittings, telephones, bells and clocks, Messrs. Higgins & Griffiths, Ltd.; windows, special glazing and all metal work, Mr. William Smith; sanitary fittings, Messrs. A. Emanuel & Sons, Ltd.; lifts, Messrs. Smith, Major & Stevens, Ltd.; locks and door furniture, Messrs. James Gibbons, Ltd.; screens, counters and all wall panelling, Messrs. John Mowlem & Co., Ltd.; furniture and fittings, Messrs. J. P. White & Sons, Ltd.; architectural stone carving and internal plaster modelling, Mr. Joseph Whitehead; fireproof glazing, Messrs. Luxfer Prism Syndicate, Ltd.; grates, Messrs. G. Matthews, Ltd.; asphaltework, Messrs. Lawford & Co.; well sinkers, Messrs. Duke & Ockenden; oak wood block floors, Messrs. Hollis Bros. & Co.; slating, Messrs. Roberts, Adlard & Co.; painting, Mr. William Knight; cement, The Wouldham Cement Co.'s "Maltese Cross" brand; Fletton bricks, The London Brick Co., Ltd.; oak and hardwoods, Wm. Oliver & Sons, Ltd., and Sidney Priday & Sons; glass, Wm. J. Rose.

British Empire Exhibition.

We reproduce this week (pp. 569, 581, 588, and 589) some drawings of the Stadium now in course of erection at the British Empire Exhibition, to be opened at Wembley Park in April, 1923. The whole of the Stadium is being carried out in reinforced concrete, as also will be the main buildings, which, when completed, will form the largest set of exhibition buildings in the world. The main entrance to the Stadium is claimed to be the largest piece of architecture of a monumental character to be carried out in reinforced concrete. The architects are Messrs. John W. Simpson, PP.R.I.B.A., and Maxwell Ayrton, F.R.I.B.A., and the contractors Sir Robert McAlpine & Sons.

VICTORY SCHOLARSHIP PRIZE DISTRIBUTION.

THE Victory Scholarship Prize Distribution of the Society of Architects took place on Thursday last, in the rooms of the Society at 28, Bedford-square, W., where some of the drawings submitted were on exhibition. Mr. E. J. Partridge (President) was in the chair, and the distribution was made by Mr. Robert Atkinson, F.R.I.B.A. (Director of Education at the Architectural Association Schools).

The Chairman, having briefly opened the proceedings, and the prizes having been distributed, Mr. Atkinson followed with an address. He congratulated the students on the high quality of their work and, continuing with a few words on the historical aspect of the stadium, said there had been a little controversy as to the exact meaning of the term. Stadia had been mainly for wrestling, throwing the diskos, and other games which required to be seen fairly closely. For that reason the stadium was cut out in the side of the hill in the form of a semi-circular step-shaped affair, and the flat part of it was simply levelled out on the flat underneath the hill. The Romans had in the beginning two or three types of enclosure for games—stadia, hippodromes, and amphitheatres. Gradually they evolved one large stadium with two semi-circular ends in the place of the one semi-circular end of the earlier stadia. By including chariot races in their games they produced a very difficult problem, because the chariots began from one end and raced round a *spina* in the middle. A Roman stadium sometimes held as many as 400,000 or 500,000 people, but for the intimate part of the games it was more or less a failure, because the greater number of the people were too far away. Sometimes the stadium and amphitheatre were two distinct buildings merely adjoining. In one or two cases the amphitheatre was in the middle of the long side of the stadium.

Coming to modern buildings, the lecturer said the revival of the Olympic Games had led to the erection of stadia, and one at Stockholm closely followed the Roman plan, with one end more or less open and the other end semi-circular. Another stadium was being erected at Wembley for the English games next year, or the year after. This would have two semi-circular ends. On all these plans the longer sides were straight. A recent stadium at Chicago was, he thought, probably a great improvement on the earlier ones, as the longer sides were divided in such a way as to get the bulk of the seating accommodation near the semi-circular end while the rest of the length of the sides was filled in with temporary seating, which could be removed, so that the stadium could be modified to suit a varying number of people with very little difficulty. In this case, too, by grouping the main seating at the circular end of the building a greater number of people were within vision of the more intimate games. The new stadium to be erected at Paris was in the shape of an amphitheatre; the entire surface would be curved, and there would be very great advantages in that shape. For instance, the entire object of seating in that fashion was that each person should have a clear view of the amphitheatre in every part, and certainly long straight sides obstructed vision to a very large extent. The objection to an elliptical shape for an amphitheatre was that the expense was colossal, because there were no straight lines and no repetition of detail. In dealing with such buildings of great size there were two questions which rather pushed aside everything else, and one of these was as to whether the architect should make his solution a modern one, or whether he should make it more or less historical. Cost would, in any case, be the great consideration, and if the architect was going to work on historical lines he was almost sure to work in detail of an extravagant character, and so make his building to a very large extent impossible from the point of view of expense. A modern building should show its construction more or less in its purity, and with the least possible addition to make good design; the architect who was working on historical details was working on something which was not really part of his problem, and which was really a limitation when it became too much of an obsession. The construction should be utilitarian as far as possible, and the ornament of a more or less detached nature. It was easy to introduce symbolical groups of sculpture, or pylons, or pillars and columns, but it was difficult to attach these to a building of a very engineering character like a stadium. They could be attached very loosely, or grouped round the principal entrances and focal points, giving a contrast with the masses of masonry behind them.

Speaking more particularly of the designs which had been submitted, the lecturer said a stumbling-block had been the introduction of a triumphal entrance. Really the fine lines of an amphitheatre needed no other expression. They showed themselves and the less they were broken the better they were. To break them by a triumphal arch, or staircase blocks, or other projections, really detracted from the beautiful silhouette which the amphitheatre gave of itself. Many of the designs submitted had attached a triumphal arch of too big a character, which broke what would otherwise be fine designs. Actually, in such buildings the internal shape was very much more important than the external shape; the very long lines of seats gave in themselves a wonderful perspective. Externally there was a good deal of argument as to whether the architect should put arcading or columns, or leave his walls plain. But the more arches and detail were put externally, the less was the stadium expressing its function; and therefore, although arcading and columns might be historical, they were not correct in a modern building.

Dealing with the problem presented by the enormous crowd, he said if 100,000 or more people were leaving the stadium a roadway 100 ft. wide would be filled, and any other traffic would find it impossible to get away. The only remedy was to provide a double circulation, one for the public on foot and another for vehicular traffic. It was bad planning to have the park near the main entrance, with the result that some people, after leaving their cars, had to walk half a mile round the building to find a doorway. In California there was a stadium cut into the hillside at one end and the top seats were level with the roadway. Above that was a great parking space for cars from which people could see what was being done in the arena. They could either remain in their cars or leave them and take their seats in the stadium.

For visibility, the elliptical shape was better than the straight-sided one. It should be made practically impossible for the crowd to invade the arena between the games, and the most common method of doing that seemed to be to raise the front seats several feet above the track. But that was a very bad principle, because it threw the angle of vision of the rear seats to a very great height. A better way was to keep the track and seating level, and to dig a pit in between which would form a circulation for the athletes out of sight of the people in the seats, and allowing them to get to any part of the field without obstruction of visibility. A point in the planning of a stadium was to have an internal circulation under the seating and between the various dressing rooms and entrances. Such a corridor was useful not only for the purposes of communication but also for forming processions.

A detailed criticism of the various designs followed.

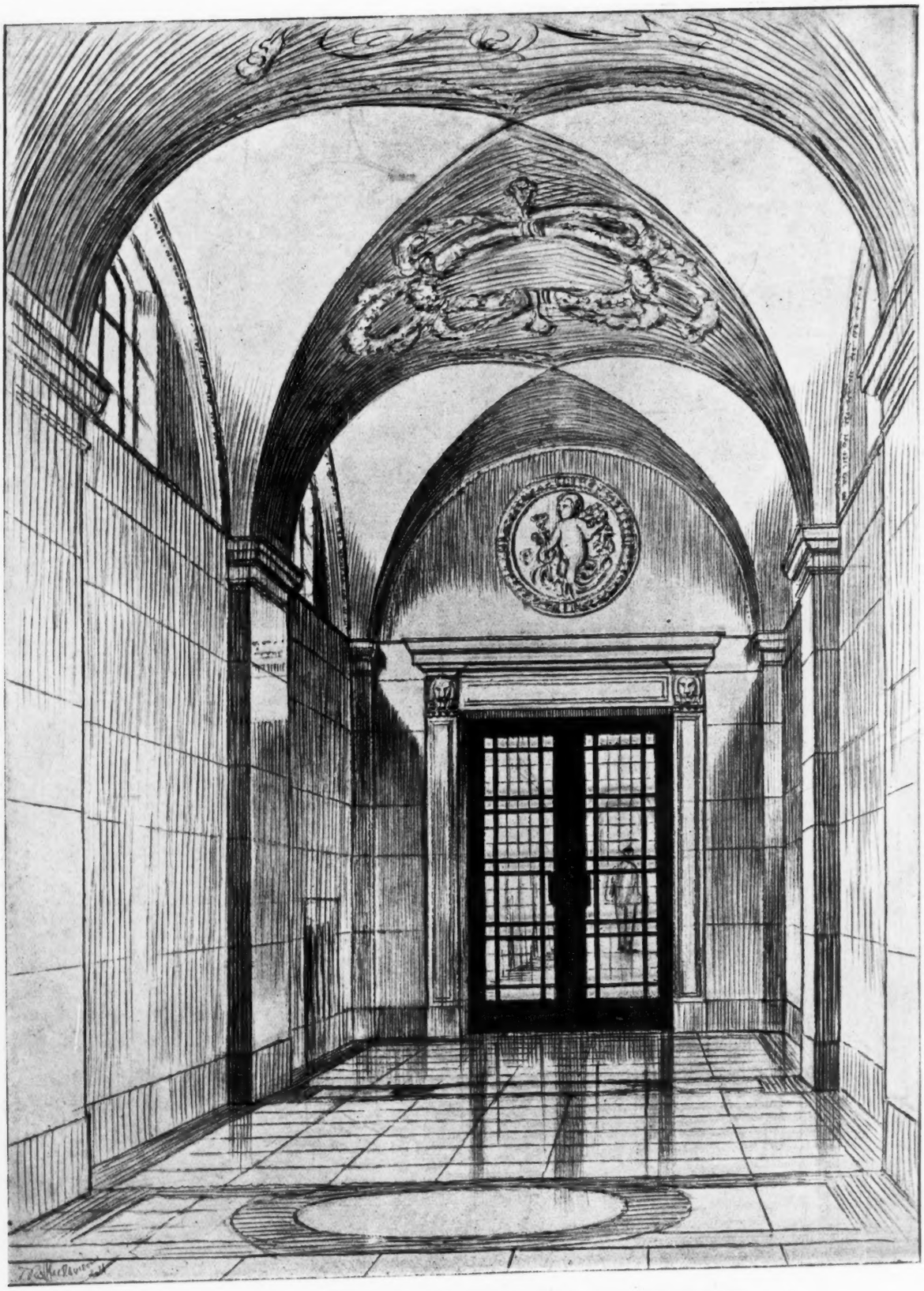
A vote of thanks to Mr. Atkinson terminated the proceedings.

Port of London Authority Building, Tower Hill: View from Trinity Square Gardens.

MR. EDWIN COOPER, F.R.I.B.A., Architect. (*See p.* 572.)

Port of London Authority Building, Tower Hill: Chairman's Room.

Mr. Edwin Cooper, F.R.I.B.A., Architect (*See p.* 572.)



Port of London Authority Building, Tower Hill : A Ground Floor Corridor.

MR. EDWIN COOPER, F.R.I.B.A., Architect (*See p.* 572.)

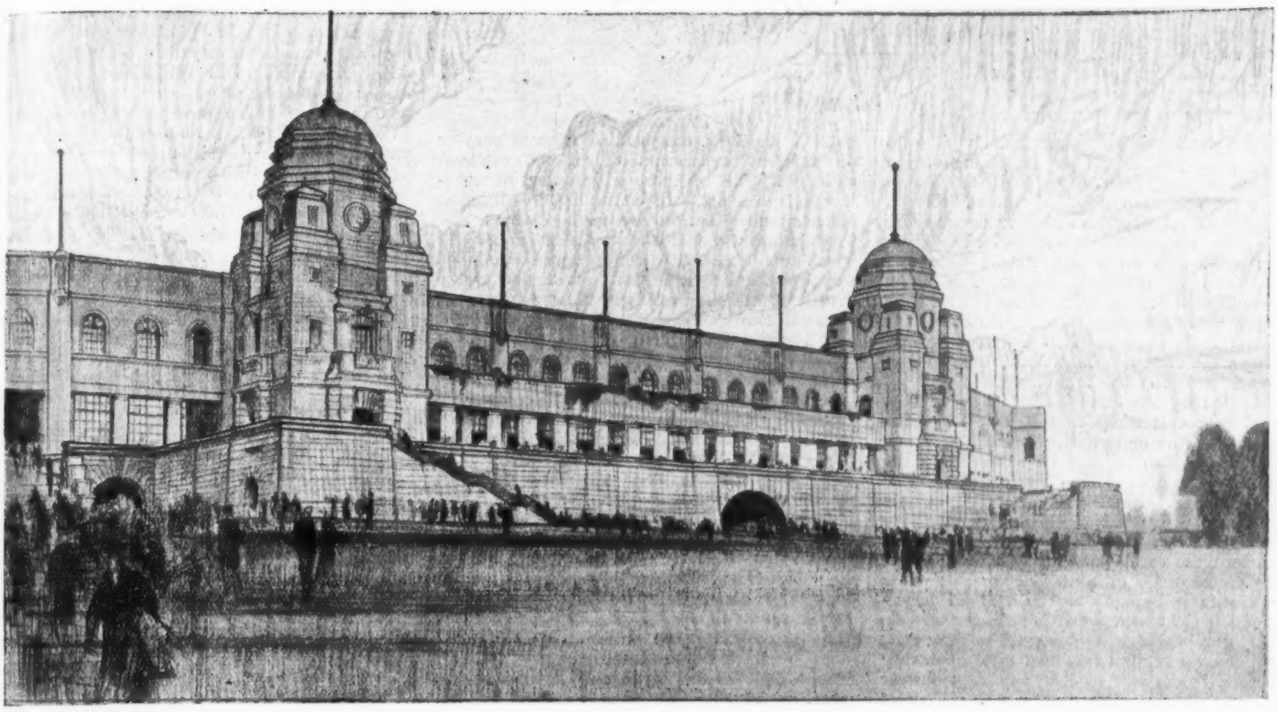


Photo: Campbell Gray.

MAIN ENTRANCE.

Photo: Campbell Gray.

AERIAL PERSPECTIVE.

The Stadium at the British Empire Exhibition, Wembley.

Messrs. John W. Simpson, P.P.R.I.B.A., and Maxwell Ayrton, F.R.I.B.A., Architects. (*See p. 577.*)

MEDIÆVAL CHURCH ARCHITECTURE IN FINLAND.

BY CAROLUS LINDBERG.

(Concluded.)

THE Nyland group of churches, its pioneers dating from just before the beginning of the fifteenth century, receives its particular stamp chiefly from a group of churches in the eastern part of the district. The exterior characteristic is a richly decorated west elevation, the gable being filled with an ornamentation composed of recesses of different shapes. The strict conformity of these compositions with one another and the strongly accentuated style combine these churches into a narrow group, in which the most beautiful Gothic creations of Finland are to be found. The type is represented by the churches at Perno, Pyttis, Borga, Sibbo, Helsinge and Esbo. The same ornament-motifs or the characteristic grouping of these can also in part be observed in the majority of the other churches in the district: Inga, Sjundea, Lohja, and Karis. The style of church found in Nyland has, especially with regard to its gable-compositions, strongly influenced the forms in other districts. Thus, there are churches in Finland proper in which the motifs marking out the Nyland gable-schemes are met with partly in the same characteristic grouping as in the original type. That this influence has not travelled in the contrary direction, from west to east, appears from the fact that these churches of Western Finland either altogether, or in the parts ornamented, have been erected later than the pioneer works of the Nyland type. Churches of this description in Finland proper are those at Pernio, Laitila, Nagu, and Masku.

This luxurious ornamentation in brick, together with its purely formal treatment, proves that the first ideas for the Nyland gables came from abroad, more precisely from districts where building in brick was no longer new. Many details and also the grouping as a whole point to Baltic or North-German brick-building areas as the place of origin of this ornamentation, traffic with these districts being lively at the time when the churches were erected. From these places the first impulses came as a loan, which was then taken care of and developed in our country.

A group of churches, original and held together by a strong affinity in style, is met with in the Satakunta district, many of them, especially those on the Kumo River and its tributaries, erected during and after the first decades of the fifteenth century, being characteristic of the type. To this group belong the Churches at Ulvila, Huittinen, Tyrvää and Kempäälä, and further, certain portions of the monastery at Rauma and the Messukylä rural church in Tavastland, and the separately built sacristy at Akaa. The ornamentation of the gable-peak, running, in a manner peculiar to the group, parallel with the eaves, is built up here of many rich, typical recesses and surface-ornamentation motifs, such as the round-recess frieze, star-recess (a distant relation of the Gothic rose-window), shield-recess and clover, all of them forms the origins of which can be sought in the ornamentation in brick and natural stone of western church-architecture.

The Satakunta type derives its gable-ornamentation from Sweden. An Uppland and certain Dalecarlian churches (Nysätra-Torsang) can be cited as the original types for this style. The form-language of the earlier Satakunta churches shows a near relationship with these Swedish examples, but is developed later in a spirit which can only be native to Finland.

From the coasts both in the south and west, the progress in building spread gradually into the interior, to the parishes, rich in lakes, of Tavastland. The buildings erected here during the fifteenth century, and partly also in the beginning of the sixteenth, bear witness to this migration. Influences from both the Nyland and the Satakunta-types may be seen in the gable-decorations, composed of a great number of different ornaments of the Tavastland churches. The manner of grouping of ornaments is original, but varies in the different churches more than in any neighbouring group. The churches of this district form, figuratively speaking, a chain, in which the forms are linked together, binding thus the individual churches into a whole. As examples, the churches at Hollola, Hauho, Vanaja, Lammi, Sääksmäki, and Sysmä may be given.

The Tavastland church-forms, as described above, have grown on their own territory and have developed, in a greater degree perhaps than elsewhere in the land, a purely national spirit. One particular erection in the district has a position of its own; the brick church at Hattula in the vicinity of the castle and town of Tavastehus. In its plan and interior construction it is similar to the other rectangular, three-naved churches of the mainland-type; but as to the material used, the great dimensions of the side-buildings, and the architectural treatment of the exterior one may seek in vain for parallels among the other rural churches. Only in certain parts of the cathedral at Abo does brick dominate as completely as here. The corners of the church, built originally of brick from the granite base to the point of the gable, together with the starting-points of the vaultings in the exterior walls are marked by high outer buttresses; the exterior wall-surfaces are accentuated below by a socle and are finished off above by a cornice-like recess. The ornamentation of the gables is not luxurious, but unique by reason of its figures of moulded stone. Such a subdivision of the walls, foreign to Finnish parish churches and made possible only by the material used, seems to show that special circumstances, unknown in other parts of the district, have affected the erection of Hattula church. This acute influence, North German apparently, to judge by the building-forms exercised during the Gothic period on a parish church up in Tavastland, is hard to explain unless one takes into account the castle at Tavastehus. This building, erected probably in the beginning of the fourteenth century after the pattern of the castles of the German Knights of the Sword, has with certainty bound foreign master-builders in its service, and these have then given proofs of their activity at Hattula.

Spread over a wide area along the coast there are churches in East Bothnia, which were erected at the same time as those of Tavastland, but which to-day have either been reconstructed as to their form or are already in ruins. These give, therefore, only a weak idea of a special group of churches, and add but unessential details to the picture of Finnish mediæval architecture as a whole. To these churches belong, among others, those at Isokyrö, Pedersöre, Gamla Wasa (Mustasaari) and the church at Kemi in the far north.

The recess-ornamentation of Finnish mediæval churches, as it appears in the gables of the body and the side-buildings—also, at times, decorating other parts of the exterior (Borgå, Pyttis, Helsinge, Sauvo, Letala, &c.)—the profiling with shaped bricks frequently used later in the Middle Ages, and the rich tracery of the church windows, preserved partially even now, can be traced back to the influences of the Gothic style, in a form suited to its new environment. These methods of decoration are weak echoes, carried northward through the agency of brick-architecture, of the rich form-language of the great Gothic cathedrals. The fact that the western gables of these country churches are more decorated than the eastern gables should serve as evidence.

Although felt later here in the north, the complete victory of the Gothic style has had deeper effects on Finnish church-building than a borrowing of its purely formal architectural motifs. The stereometric formation of the

Church at Sund.

churches makes this clear. Here the gain is most evident. The principles of interior construction change, and especially in the upper vaulting a development sets in towards an ever freer form, better both in construction and æsthetically.

Constructing the walls was relatively easy even with the difficult stone material offered by nature. What was lacking in delicacy and in a suitable apportioning of the outward and downward abutment of the erection was made up for by a prodigal use of material in the masses of masonry. The constructing of the roof with similar material was of considerably greater difficulty, even where the churches were small and unpretentious, as was the case in older times. A solution to the problem of limiting the space upwards was found in the use of wooden constructions (open rafters, barrel-vaults of wood, flat ceilings). Among the older churches which have thus lacked, and still lack vaultings, the one at Eckerö may be mentioned. In the single-naved churches at Hammarland and Finström an attempt was made to solve the vaulting problem by the use of stone as material, the result being undeveloped vault-forms and methods of construction. The plans at Finström deserve special attention, the barrel-vault having been erected on broad, semicircular arches, built on to the wall from thick pilasters, pierced below by openings. The system is connected, despite its simple construction, with the vaulting-method characteristic of the Romanesque style, with diagonal barrel-vaults in the side naves, which here cut into the central vault like groins. That this form lives through a last renascence at Finström is shown, however, by the fact that the barrel-vault has already been given a system of ribs, which though it is attached but loosely, marks the dawn of new principles of vaulting, known already even here although an organic use of them was as yet impossible.

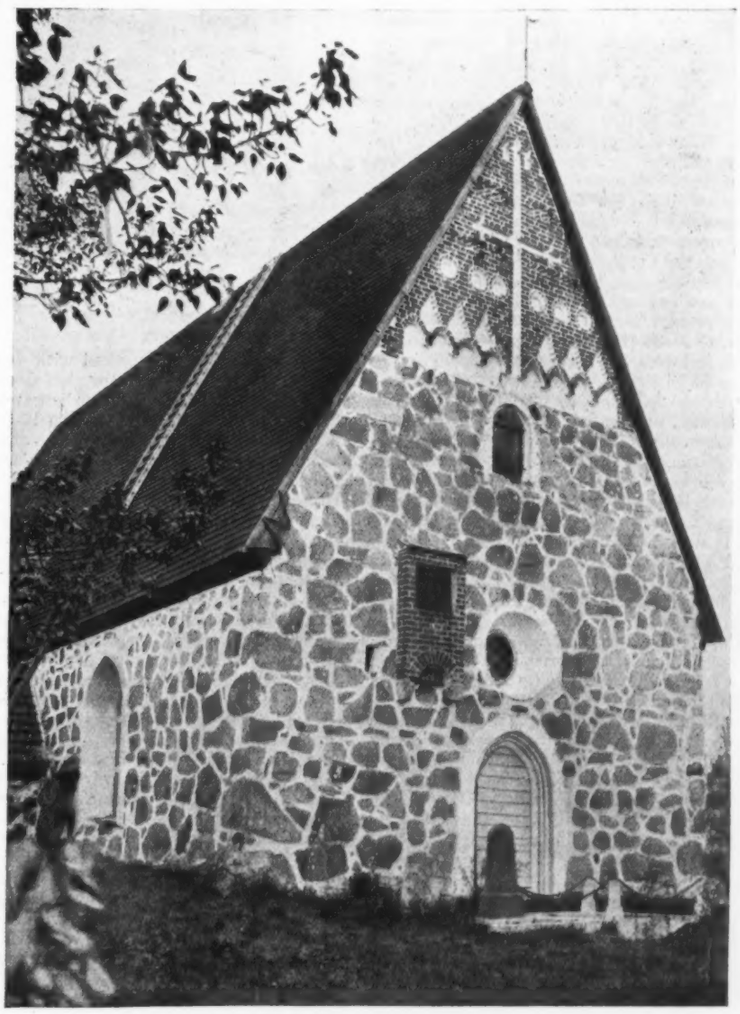
The solution met with at Finström, the diminishing of the width to be spanned by strong pilasters, is made use of also in certain single-naved churches built later, in the vaulting of which Gothic methods can be discerned. The architecturally effective form of the pilasters at Rymättylä in Finland proper may specially be pointed out, likewise those in the fifteenth-century churches, built after Swedish patterns, in Satakunta. The barrel-vault is on the other hand preserved, more especially in the churches of the south-west corner of the land, as a covering for the annexes, the sacristy, and the armoury.

With an increase in the breadth of the nave the free support has been used in order to make possible a covering of a church with stone as early as the thirteenth century. These supports (single pillars are never met with) are erected, in accordance with the demands of the construction, in the centre of the church, so that the latter is divided into two equal naves. The origin of this system is possibly to be found in influences from abroad, but the arrangement is a natural consequence of architectural logic, which in its gradual development creates new building-forms, and it may equally well have been thought out in Finland. Original two-naved plans of this early type are met with at Korpo, Sund, Saltvik, Kaarina, Vehmaa, and Karkku, among which, at least, Kaarina can be proved to have possessed vaultings of natural stone.

The desire to create churches in conformity with both practical and æsthetic standards still remained unfulfilled by these two-naved buildings. The greatest defect in them was the central row of pillars, which, thick as a wall, cleft the interior in twain and hid the main altar in the centre of the eastern gable-end. If technique be regarded as the mother of the two-naved church, the reason for the birth of the three-naved plan must be sought for in æsthetic and practical factors. Thus, in certain churches, e.g., those at Vehmaa and Kaarina, a two-naved plan has been carried out in construction, but later in the Middle Ages a three-naved reconstruction of the main body has taken place.

The static properties of the three-naved church differ essentially from those of both the single and even the two-naved form. Dimensions have been increased and thus also the difficulties of a stable equipoise in the construction. The clumsy stone vaults and heavy arches of the single-naved church would have brought about a covering more worthy of a cellar than a church. New factors had to join in. Brick appears on the scene and by its more suitable qualities for upper vaulting solves this problem. Brick is given the task of building up the interior of the churches and only by its help is the three-naved arrangement made possible. Both the supporting and supported parts of the building are built of brick: pillars and consoles, arches and vaultings. In many cases even large areas of the walls from which the vaultings spring are built with brick. In certain older churches, e.g., the three-naved at Vehmaa, Taivassalo, and Pargas, and the single-naved at Masku, in which it can be proved that later in the Middle Ages vaultings of brick have displaced older ones, either it has not been possible or not desirable to hew connections for these in the granite masonry, but instead, a system of pilasters, built of brick and connected by semicircular arches, has been added to the walls, from which the vaults and arches then ascend. This internal work shows plainly the decisive rôle to be played by brick in the forming of church-interiors. Its results go further, however, as will be shown in what follows. The original three-naved churches constructed during the Middle Ages in Finland show, on a comparison with the churches of neighbouring countries, dimensions worthy of note. The cause of this is not to be sought in the need for buildings to fulfil the wants of the wide (though, to be sure, sparsely populated) parishes, but in the fact that these Finnish churches were erected at a time when constructive difficulties had been lessened by the use of brick, which made possible an execution of the whole in a larger style.

The three-naved mediæval Finnish church shows, both where the original vaulting can be discerned and in those churches where an earlier vaulting has been replaced by a later, a central nave usually nearly double the width of the side naves. At the same time the central nave has both for technical and for æsthetic reasons been made higher than the side naves. The broad arcades running in the direction of the main body accentuate by their direction and their powerful form an obvious movement from gable to gable in the interior. The illusion is rendered stronger by the fact that the thinner transverse arches only weakly mark the division of the nave into compartments. The system is represented in the oldest three-naved churches (or those fashioned later into three naves), such as Mynämäki, Taivassalo, Vehmaa, Kaaring, Pargas, and other churches, but is maintained also in the majority of churches built later in Finland proper—Nyland and Tavastland possessing as should appear from the foregoing, despite its hall church form, several details belonging to the basilican type. In its ordinary form this three-naved church-interior shows a simply worked-out system of details. In section the pillars are quadratic or cross-shaped; the arcades spring direct from



Church at Vanaja, Finland.

their supports, and the transverse arches and ribs are held by simple consoles.

The upper vaulting, composed in the earlier churches of simple groined vaulting in all the naves, receives in those built later, during the fifteenth century, a richer composition, with stellar-vaulting in the central and groined vaulting in the side naves. Details become unimportant and the great, simply-carved masses and calm, effective surfaces build up the interior together. The effect is far from cold and empty as the surfaces are generally filled by ornamental or figure-paintings, woven like a glowing network of colour round the forms of the building. The numerous ribs of the vault—so important in the construction—and the copings between them, seem to demand a treatment of this nature. In two churches in Western Finland, Kaarina and Pargas, the details carried out in brick, by their richness and their marked individuality, place these churches in a class by themselves. Many details prove that the cathedral at Abo in the near vicinity has been used as a model for their interiors.

While this common three-naved mainland-type of church possesses certain of the characteristics of the basilican type, a group of large churches erected during the fifteenth century in Finland proper appears in which the principle of a regular hall-church with naves of equal breadth and height, together with an equal accentuation of the arches springing from the pillars, has been closely carried out. The section of the pillars, earlier quadratic, here becomes octagonal. These churches, situated near to one another (Sauvo, Kimito and Tenala), are interesting on account of their considerable proportions and their richly-divided stellar-vaulting. Mediæval vaulting in Finland reaches its zenith in these churches, and the Gothic idea celebrates, especially in their interiors, triumphs worthy of note in the circumstances. To these churches, erected according to the hall-church system, belong, besides the Monastery Church at Nadendal, the one at Hauho in Tavastland, although the forms here differ considerably from those just mentioned.

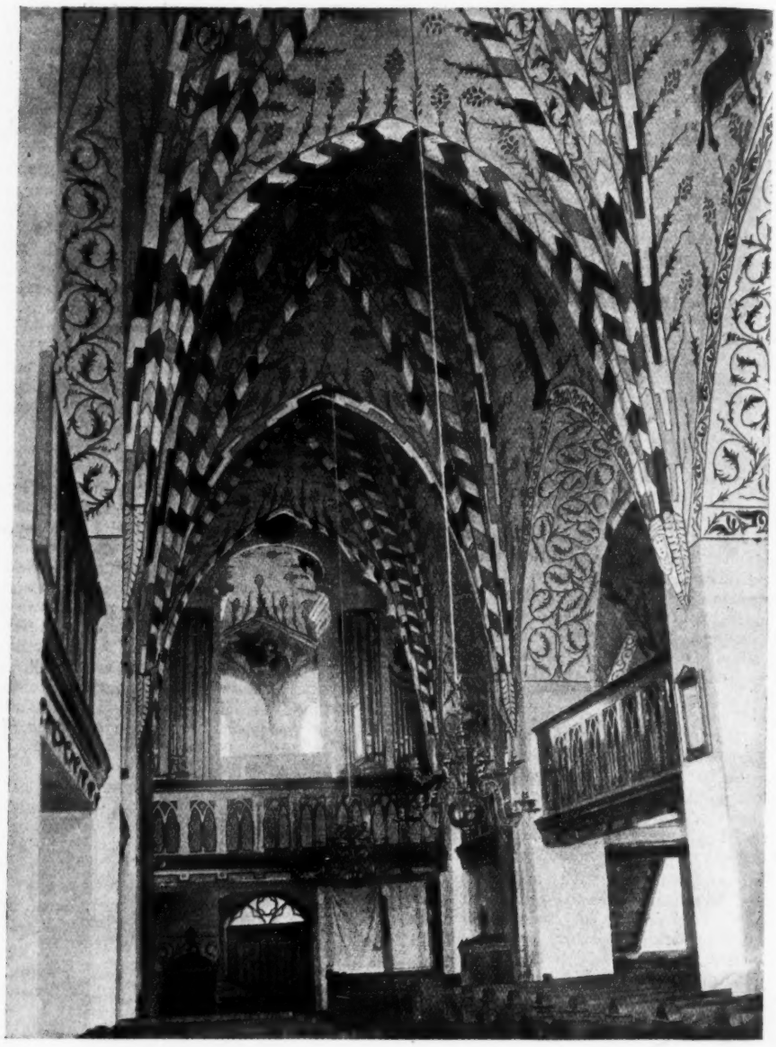
However little the Gothic idea may have influenced church-construction in Finland, and however little the works produced answer to the craving for form of this style, it appears still as though even here in Finland one could discern the beginning and end of a special Gothic period.

Thus, towards the close of the Middle Ages, a return to forms which characterised an earlier age can be observed, a typical consequence of a weakening of the intensity in style. Churches single-naved or two-naved in plan appear again especially in Tavastland. As examples, the single-naved church at Vanaja and the two-naved churches at Hollola and Sääksmäki may here be cited. Inga church in Nyland, showing Tavastland motifs in certain of its parts, is also in its later form two-naved.

Among the Roman Catholic institutions in the country, the monastery has played a not unimportant part. During the Middle Ages Finland possessed six of these: Dominican at Abo and Wiborg, Franciscan at Wiborg, Rauma, and Kökar, and a Birgittan at Nadendal. Only a few architectural relics remain of them. The Dominican church at Wiborg, the Franciscan at Rauma, and the Birgittan at Nadendal stand even now partly in their original shape, while all the other churches and monastic buildings have been levelled to the ground. These remnants of a building activity in the land, doubtless worthy of note, show that the uniform rules of the monastic order, covering even building, have here also been followed. The peculiar building-tradition of the Franciscan Order, the erecting of monastery-churches with two naves of unequal breadth, has thus been followed at Rauma in the church built in about the middle of the fifteenth century. That even here, despite the tradition of the Order, building methods characteristic to the neighbourhood have been used, appears from certain ornament motifs, peculiar to Satakunta, in the annexes. A similar plan is shown by the rural church at Pojo in Nyland, unconnected with any monastery. The three-naved Birgittan church at Nadendal received, as might be expected, the most powerful impulses for both its being and form from the mother-church at Vadstena, the same original planning of the different parts of the church, necessary for the Birgittan ritual, being found also here. Thus the main choir was situated in the west, with, opposite it, in the east, a corresponding smaller choir. The high proportions and airy hall-church form of the mother-church can show a worthy offspring in the corresponding church at Nadendal; in the latter, however, a richer, purely colouristic execution of detail, preserved in the remains of the western sanctuary, has been followed. Also, the high gables, carried out in brick and decorated with cross-recesses, have received an altered construction. Though banned in theory from the building-rules of the Birgittans, brick has been used in the western choir, with its high windows placed in pairs in the south and north walls, and the exterior buttresses, decorating further the northern portal in the east gable. The corresponding entrance in the same wall is, on the other hand, framed with sculptured limestone. The original form of the church from the middle of the fifteenth century, together with its connection with the former monastery buildings is now, however, after repeated rebuildings, only discernible in some of its parts.

The picture given here of the development and form of church architecture in Finland would be incomplete were the most remarkable mediæval monument, the cathedral at Abo, to remain undiscussed. The building shows, in so far as its history can be pieced together from the reliable sources and its own shape, that the development of form has here for a time run parallel with that of the rest of the land, but has soon struck out in a direction of its own. While the other churches show, by their modest planning and construction, a style that might be termed rustic, the church at Abo attempts, with full justification, to represent the richer and nobler cathedral architecture. The form-language of the Middle Ages, more especially that of the Gothic style, appearing elsewhere only partly or in altered shape, has here in the Abo Cathedral taken on a legible form. Through this building the relationship of mediæval with western architecture, more particularly with the branch stretching out along the shores of the Baltic, is rendered more intimate.

According to documents, a church of granite was erected on the site of the cathedral in the thirteenth-century, forming now its western part. In plan this church has shown a rectangular, three-naved main body, possibly also with external choir, to which a western tower was attached. The construction resembles, with certain deviations, the church-type, towered and towerless, of South-West Finland. This stone church forms, perhaps, the stem of the architectural masses of the cathedral, but not the formal motif for its enlargement. When in the latter half of the fourteenth century the cathedral was lengthened towards the east and was given a polygonal choir, in which the side-naves are continued, these and other extensions were carried out in brick. A wholly new form is



Church at Taivassalo.

attempted and the cathedral enters a period in which the finest fruits of brick-Gothic in the land are achieved. The exterior especially is distinguished by a rich disposition of form and treatment of details. A consequent system of numerous buttresses is erected at the commencing points of the vaulting; the wall-surfaces, broken by high windows with pointed arches, are built outside above the height of the window-seats in diamond-shaped pattern brickwork and are decorated below this with an openwork frieze, put together of shaped bricks. Shaped bricks and a recess-ornamentation have been largely used also in the decoration of other parts of the building, among which the windows and portals and the heightened tower takes place specially worthy of note.

The cathedral was originally erected as a hall-church with five pairs of quadratic pillars which bore up the groined vaultings. At the rebuilding mentioned earlier, the choir was fitted with octagonal pillars decorated with ribs. The vaulting remained also here of a simply-groined character. Later, however, the section of the church was considerably altered. Thus, all of the naves have been heightened twice, and the original hall form of the church has been altered to basilican. Openings for light were made in the high wall of the central nave and this was strengthened by flying buttresses, hidden now by the roofs of the side-naves. During the last mediæval rebuilding, which occurred in the middle of the fifteenth-century, the central nave was covered by stellar-vaulting. Round this stem a row of side-buildings and chapels sprang up during the course of the Middle Ages.

The misfortunes which have repeatedly befallen Finland have not spared the cathedral at Abo. Fire has again and again, in the course of time, raged round its walls, and after each such occasion something new has been added to it.

In its architectural form Abo Cathedral, as has been seen, differs from the other churches of Finland. It mirrors, however, besides the general character of Finnish art, the same influences as have shaped the rest of Finnish churches. Thus, in the beginning, Swedish influence is apparent, which soon gives way to more powerful impulses, coming, through the agency of the increased Baltic traffic, from the Hansa towns. The brick architecture of North Germany in especial has influenced in high degree both the material and the form of the cathedral.

The architecture of Finland's mediæval churches, solemnly heavy in its massive simplicity, cannot, however, relate with any finality the pomp and beauty with which the Roman Catholic Church surrounded its religious ceremonies. If the exteriors of the churches were severe and barren, in their interiors a mystic world of line and colour was disclosed. Artistic carvings in choir-stall and barrier, altar-fittings rich in colour and precious church-silver gleaming from behind the altar's antependium caught and held the glance. In the twilight within, illumined by flickering candles, strange figures grew out of the surroundings, peopling the walls and supports and, wound around with leaves and garlands, filling the curved surfaces of the vaults. The Word spoken at the altar was made universal and intelligible by the wondrous picture-language of the church-paintings.

The King Edward Memorial, Edinburgh.

The King unveiled a statue of King Edward VII at Edinburgh on Tuesday last week. The statue, wrought in bronze, stands immediately within the forecourt of the old Palace of Holyrood, and is from the design of Mr. G. Washington Browne, R.S.A. King Edward is represented by a figure 9 ft. in height, wearing the robes of a Knight of the Thistle. The statue forms the principal part of a memorial scheme to which there were more than fourteen thousand individual subscribers. The remainder of the scheme consists of the erection of three great sets of pillared gates in the Palace enclosure.

BOOKS.

Soliloquies in England. By George Santayana. (London: Constable. 12s. net.)

Mr. Santayana was for many years a professor of philosophy at Harvard University, and is recognised as a cosmopolitan philosopher of wide reputation. The essays which form this book are amongst the most charming we have yet read, and all students of psychology will appreciate his detached outlook. Where we may not entirely agree with his philosophy we are sensible of his mastery of the English language. To us, the most interesting essays are those concerned with architecture, which will appeal to those who are not inclined to accept Ruskin's ethical writings upon architecture—beautiful as they are. Mr. Santayana's soliloquies upon architecture are symbolic, as, indeed, are most of the essays in this book.

He begins his essay on "The Human Scale" with the following phrase:—

> "Great buildings often have great doors; but great doors are heavy to swing, and if left open they may let in too much cold or glare; so that we sometimes observe a small postern cut into one leaf of the large door for more convenient entrance and exit, and it is seldom or never that the monumental gates yawn in their somnolence. Here is the modest human scale reasserting itself in the midst of a titanic structure, but it reasserts itself with an ill grace and in the interests of frailty; the patch it makes seems unintended and ignominious. Yet the human scale is not essentially petty; when it does not slip in as a sort of interloper it has nothing to apologise for. Between the infinite and the infinitesimal all sizes are equally central."

Still on the same theme he writes:—

> "An English country house which is a cottage in appearance may turn out on examination to be almost a palace in extent and appointments; there is no parade, yet there is great profusion—too much furniture, too many ornaments, too much food, too many flowers, too many people. Everything there is on the human scale except the quantity of things, which is oppressive. The Orientals are poorer, more voluptuous, and more sensitive to calligraphy; they leave empty spaces about them and enjoy one thing at a time and enjoy it longer."

Of the Saracen he says:—"He makes his life simple, his religion a single phrase, his art exquisite and slight, like the jet of his fountain."

> "Why the Egyptians loved things colossal I do not know, but the taste of the Romans for the grandiose is easier to understand. It seems to have been part and parcel of that yearning for the super-human which filled late antiquity."

In his essay upon English architecture he says:—"Strictly speaking there is no English architecture at all, only foreign architecture adapted and domesticated in England. But how thoroughly and admirably domesticated!" Mr. Santayana writes powerfully upon the tragic and public character of classic architecture, and traces the mellowing effect of English character and environment upon the classic influence. This is how the English build:—

> "How gently, for instance, how pleasantly the wave of Italian architecture broke on these grassy shores! The classic line, which is tragic in its simple veracity and fixity, had already been submerged in attempts to vary it; in England, as in France, the Gothic habit of letting each part of a building have its own roof and its own symmetry at once introduced the picturesque into the most "classic" designs. The Italian scale, too, was at once reduced, and the Italian rhetoric in stone, the baroque and the spectacular, was obliterated. How pleasantly the Palladian forms were fitted to their English setting; how the windows were widened and subdivided, the show pediments forgotten, the wreathed urns shaved into modest globes, the pilasters sensibly broadened into panels, and the classical detail applied to the native Gothic framework, with its gables, chimneys, and high roofs; whence the delightful brood of Jacobean and Queen Anne houses; and in the next generation the so genteel, so judicious Georgian mansion, with its ruddy brick, its broad windows, and its delicate mouldings and accessories of stone. The tragic and the comic were spirited away together, and only the domestic remained."

We would expect that Mr. Santayana would succumb to the picturesque, and we are inclined to question the philosophy of his argument—though it is a pretty thought—that the "obligatory things"—meaning architecture—become properly English in character only when their public function recedes into the background.

> "They grow English in growing picturesque. These castles and abbeys were Norman when they were built, they were expressions of domination and fear—hard, crude, practical, and foreign. But now the moat is grass-grown, the cloister in ruins, the headless saints are posts for the roses to creep over, the frowning keep has lost its battlements and become a comfortable mansion mantled with ivy."

The author discusses the sort of æstheticism which was the fashion in London at the end of the nineteenth century, which doted on art for its own sake, but in reality was full of perverted moralism. The æsthetes were simply Ruskin's pupils who had reacted from his teachings.

> "The architecture of that time was certainly not comic in any sense of the word, it did not give a free rein to exuberant fancy: it was only railway Gothic."

Mr. Santayana ends this essay in a hopeful strain:—

> "And with better models, and with less wilfulness, I see the fresh building of to-day recovering a national charm: the scale small, the detail polyglot, the arrangement gracious and convenient, the marriage with the green earth and the luminous air foreseen and prepared for."

For the most part these soliloquies are on English themes, and this Hispano-American philosopher finds England "pre-eminently the home of decent happiness." He wonders how it is that "England is the paradise of individuality, eccentricity, heresy, anomalies, hobbies, and humours." The essays on War Shrines, on The English Church, on Privacy, on Classic Liberty, on The Lion and the Unicorn, on Liberalism and Culture, and on John Bull and his Philosophers, are only a few of those which appeal particularly to us. The book is full of penetrating literary and æsthetic criticism; it is delightfully written, and will be enjoyed by all readers of meditative fancy. H.

Rent Restrictions and Building.

Witnesses gave evidence on behalf of organisations of house owners at Tuesday's sitting at the Ministry of Health of the committee appointed by the Government to inquire into the working of the Rent Restriction Act. Sir Henry Norman is chairman of the committee. The National Federation of Property Owners and Ratepayers and the National Association of Property Owners and Factors of Scotland sent representatives, and Mr. Edwin Evans, president of the London Property Owners' Protection Association, also attended. In a memorandum submitted to the committee it was held that a flat increase of rent on a uniform basis operated inequitably, particularly in respect of small dwelling-houses. The general assumption was that ability to pay was invariably governed by the earnings of the tenant, but from two to six wage-earning people in a small working-class dwelling was by no means an uncommon experience. Rent restriction had a paralysing effect on the production of houses. The scores of millions of money needed for building working-class houses to be let at fair economic rents would never be forthcoming until investing purchasers were secured. Such purchasers would never be found until every trace of rent restrictive legislation was a thing of the past.

TRAFFIC CONGESTION & TOWN PLANNING.

A RECENT edition of *Stadtbaukunst Alter und Neur Zeit* (Berlin) contains an interesting article on town planning, in which the London traffic problem is dealt with, from which the following notes and illustrations are taken.

In our old towns, where traffic difficulties are most frequent, it is difficult to make radical changes in the lay-out of streets. There police regulation and supervision will be the foremost means of solving traffic difficulties. One cannot but agree with the conclusion of the *Town Planning Review*, that "only the right-angle crossing controlled by the police is an adequate safeguard against accident and confusion" (Vol. III, p. 219). An attempt may be made in another direction, *i.e.*, an improvement through a division of the traffic on the principle *divide et impera*, by which a certain part of the traffic will be cut out of the point of the greatest crush—the centre point—without necessitating a great change of direction or alteration of the street. Attempts to violate the traffic and to divert it from its natural course cannot be considered in this connection. It is a question of regulation leaving the course of traffic untouched.

Attempts at traffic division have been made. In Berlin one of the worst crossings is the Potsdamerplatz, on which five very much frequented streets meet. Here a solution was found by diverting the traffic at the corner of the Leipzigerstrasse, 150 metres before reaching the Potsdamerplatz, and leading it back into the main direction at the corner of Budapest-street.

It would be worth while to consider whether the principle of traffic division could be extended in a different way from that shown in Figs. 1 and 2. The leading point of view would have to be the reduction of multiple crossings on the centre point, but the resolving of the dangerous multiple crossings and their replacement by single easily-overlooked crossings can be achieved.

Take, for example, Piccadilly-circus in London, one of the busiest traffic centres of a capital town. In its traffic conditions it shows the general problems of large towns, but there are special points, as, for example, the direction of the streets, the form of the general plan, and, first and foremost, consideration for the historical picture created by the artist. A number of important streets abut on Piccadilly-circus: the main streets are (1) Piccadilly, main route towards the west; (2) North Regent-street, the course of traffic towards Oxford-street and the north; (3) South Regent-street, the connection towards the south, Charing Cross, and the City; (4) Shaftesbury-avenue, the course of traffic to New Oxford-street and Holborn, and finally in traffic contact with the Circus; (5) and (6) Haymarket and Coventry-street. To be added, though not to be considered in connection with this problem, there are streets like Glasshouse-street (compare Figs. 3 and 4). An enormous stream of traffic pours into the Circus at point "A" of Fig. 4. As the density and interweaving of the traffic cannot be shown in the drawing, it only gives a very insufficient picture of the problem. The mass of traffic is already collected by the main roads from numerous channels, and the streets leading to the Circus are really traffic collectors. The directions north, south, west, and north-east and their counter-directions cross one another, pass the Circus, and cut one another's direction. The questions arising have naturally already been treated by traffic experts and town planners. Mr. O. Newbold gives a history of Regent-street from its planning in the 18th century up to 1910 in the *Town Planning Review* (Vol. III, p. 86), supplemented with many illustrations. Remarkable plans for the alteration of the Circus have been published in the "Transactions of the Town Planning Conference, 1910" (p. 756).

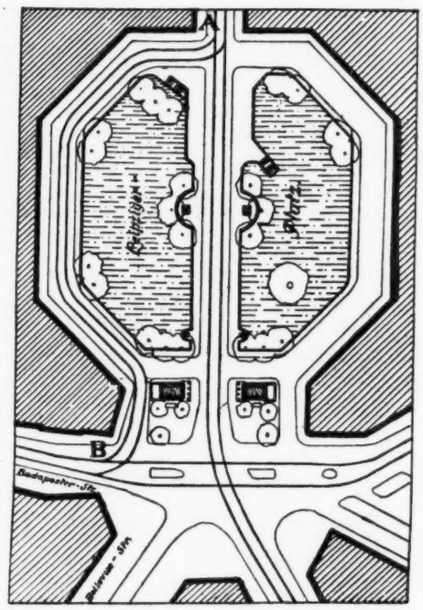


FIG. 2.—LEIPZIGER PLATZ, BERLIN.

We reproduce Norman Shaw's plan (Fig. 5). Another plan, by John Murray, though differing in the architectural solution, coincides with Shaw's treatment of the traffic problem. Both seek a solution by a considerable widening of the streets touching the Circus, which would necessarily lead to a change of the historical architectural proportions. These changes would without doubt result in a great improvement, especially at the entrance of Shaftesbury-avenue, but the main problem of the central traffic crush is hardly touched by them. The cross cuttings as shown in Fig. 4 remain. If we drew the courses of traffic in Fig. 4 into the free space of Fig. 5 hardly any difference would be apparent in the clash of the different courses on to one another. In newer town planning we often find the opinion expressed that the wider road represents also the better road for traffic; but this is not always the case, and does not apply to the question here discussed, as the main difficulty of it lies in the dissolution of cross cuttings and angles of the traffic. Traffic difficulties due to great width of streets are evident at Trafalgar-square. We acknowledge the usefulness of the widening of streets; but so long as the present general tangle of the courses of traffic persists a smooth winding-up of traffic is impossible. The question, therefore, is whether a diminution of cross cuttings at the present crossings is possible—apart from the widening of the streets.

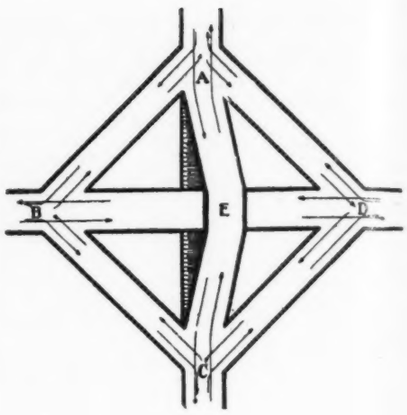


FIG. 1.

If we watch the seemingly hopeless tangle we notice that a main course of traffic—perhaps the strongest—is a turning course, which at point "A *a-b*" (Fig. 4) turns to and fro in a right angle. It is the course Piccadilly-South Regent-street which bears the mass traffic of the whole West towards Charing Cross, Strand, City, and *vice versa*, and the crossings of which (as shown in Fig. 4) are to be considered the worst. The task is to get this traffic out of the tangle and give it a separate course. This would create two parallel courses, "E 1" and "E 2," which would cross the centre point "A" separately. For this purpose the road would have to be separated about 60 metres before reaching and after leaving the Circus by a granite step of 1 ft. or an iron railing 2 ft. 4 in. high. At intervals of 5 metres passage-ways for pedestrians would have to be allowed. The south-western course would take the Piccadilly-South Regent-street traffic while the north-eastern course would serve the remaining traffic (see Fig. 6).

A comparison of Figs. 4 and 6 shows a greatly-changed configuration of central point "A." As already stated, the illustration does not show the density of traffic, but we nevertheless notice that the cutting out of the Piccadilly-Charing Cross traffic results in a considerable improvement. The main direction, Quadrant-South Regent-street, is relieved of a great deal of blocking and other difficulties. In Fig. 6 the only large traffic courses that cut across are the directions towards Shaftesbury-avenue and Haymarket-Long Acre, and a regulation of these courses would be much easier in future than it has been heretofore. The main traffic, Charing Cross-Piccadilly, remains quite untouched; it does not get into contact with any other course. (Remember

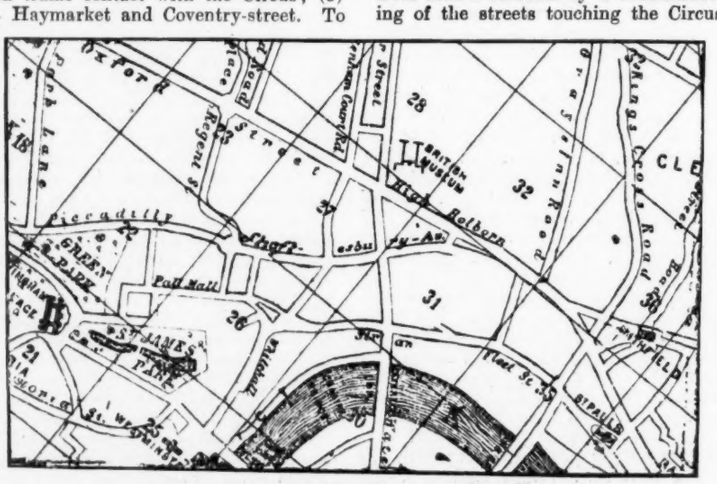


FIG. 3.—LONDON: THE CITY AND WEST END.

the rule in England, drive to the left.) It is different in the other direction, Piccadilly-Charing Cross (point "B," Fig. 6), where the traffic parts from the common course and changes into the separate course. With the present traffic regulation (Fig. 4), vehicles have to negotiate the two dangerous crossings at "*a*" and "*b*," which cut the general traffic at "A." The new plan proposes two simple crossings, where only a single and straight course would have to be crossed. These crossings are not new, they have only been detached from the tangle at point "A" and transferred to a less disturbing point. Moreover, they take place at a fixed point, known by the driver, where they can be regulated by "stop" and "go" signals of the officer in charge.

The clear width of the road at point "B" is 9.70 m.—at point "C" it is 17.5. The widths of vehicles are: Small motor-cars, 1.35 to 1.40 m.; large motor-cars, 1.60 m.; vans, 2.0 m.; motor omnibuses, 2.14 to 2.17 m. The short route "B-E 1" is therefore sufficient to take two treble rows of light vehicles or two double rows of heavy vehicles; tramcars are not considered.

The result of the change would be: The number of multiple crossings would be diminished, and traffic tangles partly solved; simple crossings would take the place of multiple cuttings: the main traffic in the different directions would be eased; and there would also be a saving of time in transportation of the public, as there would be fewer blocks at the central point and vehicles could keep up greater speed. Expenses for a change on the lines of town planning would be avoided, and the historical picture of the Circus would be preserved.

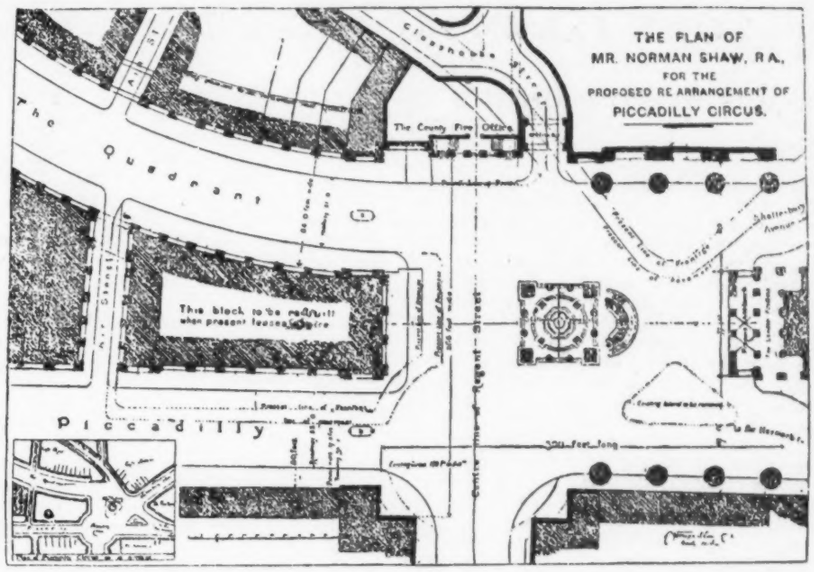


FIG. 5.—NORMAN SHAW'S PLAN FOR THE REARRANGEMENT OF PICCADILLY CIRCUS.

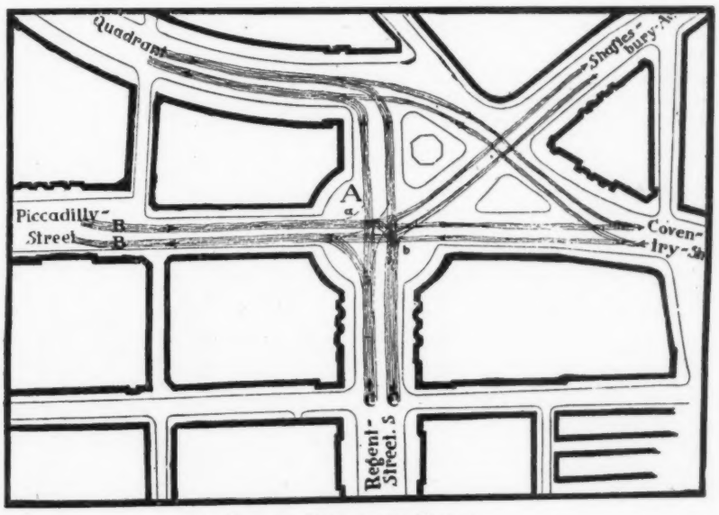


FIG. 4.—PICCADILLY CIRCUS.

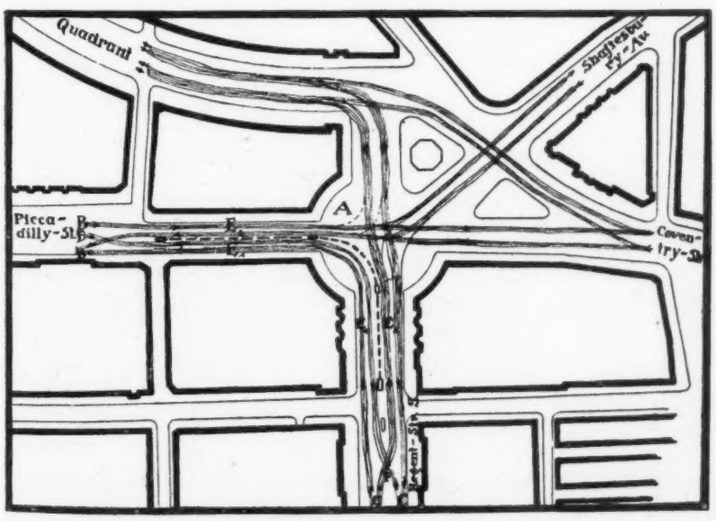


FIG. 6.—PICCADILLY CIRCUS.

EXHIBITION NOTES.

WALKER GALLERIES.

An exhibition is now open at these galleries showing recent works of Anna Lea Merritt (landscape and figures), and Harry E. James (water-colours of the English countryside). Anna Lea Merritt is well known as the painter of the picture entitled "Love Looked Out," purchased some years ago from the funds of the Chantrey Bequest, and now at the Tate Gallery. She is also a portrait painter familiar to many, having portrayed numerous well-known people, including James Russell Lowell, Oliver Wendell Holmes, and others. Landscape is a new departure; nevertheless, the paintings are broadly handled and vigorous. To mention a few examples, No. 66, entitled "The Happy Valley," depicts a pleasant valley with trees and the artist's house in the mid-distance. No. 83, "Lonely Down," is a wind-swept landscape with rolling heavy clouds.

Mr. Harry E. James's water-colours are slight in treatment, and deal with pleasant landscapes, old English villages, gardens, and ever pleasant and familiar scenes of the countryside at various seasons in the English counties. To mention a few at random as appealing to us, attention may be drawn to No. 5, "The Path to the Studio," with its flower-beds alongside, filled with delphiniums, iris and poppies, &c. This is said to be the entrance to the studio of Anna Lea Merritt. No. 11, "Autumn, Fosbury Woods," is a pleasantly coloured sketch of the edge of a wood, showing birch trees in their autumn colourings. No. 16, "In Clatford Village," a view of a typical English village, shows the homely old cottages with their thatched roofs. No. 27, "In An Artist's Garden," is a view showing an herbaceous border with the usual riot of colouring. No. 20, "Epsom Common," is a sketch of the well-known district with its inseparable gipsy caravans—a very familiar, and always picturesque, sight in this district.

THE COLLECTOR'S GALLERY.

Mr. David Neave has an exhibition of his landscapes at the gallery. The catalogue has a foreword by Haldane Macfall, who speaks highly of this artist's work as being devoid of all flash and trickiness in technique. Mr. Neave's pictures treat with subjects in Surrey, Norfolk, Devon, Wiltshire. Every picture depicts some poetical phase or mood of nature, and all or any would be pleasant to live with. No. 3, "Nutfield, March"; No. 12, "Norfolk Coast"; No. 23, "Evening on the Quay"; No. 28, "Cornfield, Evening"; No. 32, "The Mo, Sheringham"; No. 38 (oil-colour), "Topsham"; No. 43, "A Wiltshire Valley"—to mention a few.

TOWN-PLANNING AND INDUSTRY.

SOME IMPRESSIONS OF THE EXHIBITION AT THE MANCHESTER TOWN HALL.

WE went to Manchester expecting an exhibition of more than average interest, but one which would appeal more particularly to the architect, to the engineer, and to the town-planner, who should be something more than a combination of the two, and to the town councillor. We were most certainly not disappointed, but the most remarkable thing about the exhibition and the conferences has been the interest displayed by the "man in the street." The exhibition marks a definite turning-point in the history of the evolution of the idea of town planning in this country.

It is interesting to try and understand how this quite extraordinary interest has come about. The first stirring of the public mind is, no doubt, due to the housing problem and the interest which the idea of building houses on some definite scheme with the aim of improving the surroundings by studying the general plan for the development of an area has aroused. This, because it was generally a scheme of limited size, formed a useful introduction to the larger problem of town planning. The industrial magnate of the great manufacturing centre of England is interested, and not selfishly interested, in all that tends to the well-being of his workpeople; he is dissatisfied with existing conditions, and sees, in town planning, the solution of many industrial problems. The municipal councillor is similarly alive to the necessity for improving conditions, and realises that the citizens are not satisfied with things as they are. The imminence of the November elections no doubt stimulates the desire to know more of town planning and its possibilities, though the difference between housing and town planning is far from being appreciated. The ordinary man and woman is interested, first of all, because the plans and maps are new and somewhat mysterious things, and as he looks at them and carefully studies the meaning of the many-coloured diagrams, his imagination is stirred, and he begins to realise, much more clearly than ever before, the magnitude of the problem to be dealt with, and the amount of information which has to be collected before the considered regulation of the growth of a town or community can be schemed.

But the most significant and hopeful sign is the interest shown by the younger generation of citizens. The visits of schools under the guidance of their teachers is a feature of the exhibition which is of enormous importance, and we are pleased to hear that the Corporation of the City of Manchester are doing all they can to encourage this by giving special facilities and by offering prizes for the best essay on the subject.

The success of the show is largely due to its careful arrangement and to the excellent "Guide," which gives brief but sufficient information as to the exhibits. These are excellently arranged in eight sections: 1, Manchester and District; 2, Civic Surveys; 3, City Development Plans; 3A, Garden Cities and Suburbs and Housing Schemes; 4, Zoning; 5, Joint Town Planning; 6, Road Forms; 7, Open Spaces; 8, Town Planning Schemes. Of these the most interesting to the architect and town-planning expert is Section 2, "Civic Survey," which contains some remarkable examples of the preliminary studies which lead up to that important part of town planning known as Zoning.

One has to admit that the architect scores heavily over the engineer in the presentation of the diagrams illustrating such matters as time zones, traffic density, distribution of trades, population density, &c., both by good spacing of the sheets and by the careful selection of harmonious colouring to indicate the data collected in graphic form.

A close inspection of this section also shows the remarkable progress which has been made since pre-war days. Much of this is due to the excellent work done by panels of architects in the war period and during the consequent crisis of unemployment, such as the Civic Survey of South-East Lancashire and of the London District.

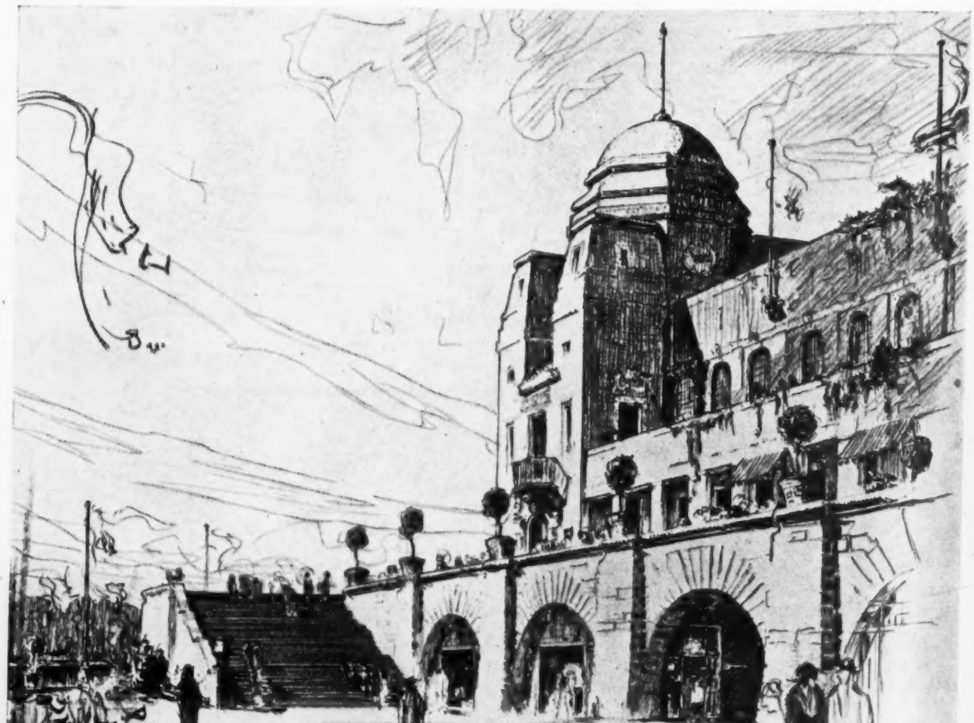
The need for some recognised convention in the colouring of these diagram maps is clearly revealed by this exhibition. We think that Professor Abercrombie and his associates have indicated the lines on which this convention should be developed or standardised by adopting light washes of transparent colour for the basic elements of the diagram, to which thin vertical and diagonal lines and a system of grid lines are added to indicate special characteristics.

In the preliminary study for the zoning map of Sheffield the following conventions are adopted:—

Description.	How Shown on Plans.
Eight houses per net acre. No business or works.	Pale green wash.
Eight houses per net acre. Shops permitted.	Ditto, with thin red vertical lines.
Twelve houses per gross acre. No business or works.	Yellow wash.
Ditto, but business permitted.	Yellow, with thin vertical red lines.
Ditto, + light industries	Yellow, with thin diagonal blue lines.
Shops and business premises. Houses permitted (12 per acre).	Yellow, with square grid lines in red.
Fifteen houses per gross acre. Business permitted	Brown wash with thin vertical red lines.
Shopping and business area. Houses (15 per gross acre).	Brown, with square grid lines in red.
Fifteen houses per gross acre. Light industries permitted.	Brown, with diagonal grid lines in blue.
Business area. Hotels, &c., permitted.	Grey, with square grid lines in red.
Business only. Hotels permitted.	White, with square grid lines in red.
Light industries; business permitted.	Grey, with diagonal grid lines in blue.
Ditto, but no dwelling houses permitted	White, with diagonal grid lines in blue.
Ditto, with 15 houses per gross acre permitted.	Brown, with diagonal grid lines in blue.
Heavy industries. Business and light industries permitted.	Grey, with square grid lines in purple.
Heavy industries.. ..	White, with square grid lines in purple.

This method has several advantages; of these the chief is that the use of light thin washes of transparent colour enables the detail of the map or plan to be clearly seen. This is in striking contrast to most of the other diagrams in the exhibition where areas, &c., are distinguished by washes of plain colour or thick diagonal or vertical stripes. Another diagram in this set shows the distribution of population by means of small black dots which is, we believe, a method in practice in America; this might with advantage be adopted as the standard method for such diagrams.

A striking pair of maps hung side by side illustrate the density of the population in



British Empire Exhibition, Wembley: Eastern Tower of the Stadium.

MESSRS. JOHN W. SIMPSON, PP.R.I.B.A., and MAXWELL AYRTON, F.R.I.B.A., Architects. (See p. 577.)

Sheffield, and the death rate from tuberculosis—a comparison of the two sheets clearly shows that the death rate is highest in the area of densest population. Another good set of eleven plans illustrates the civic survey of an American town (Flint, U.S.A.); here, in the population diagram, each dot represents ten persons.

A series of small scale zoning maps for the city of Madras are interesting, as showing a problem of some complexity. No. 1 is a contour map, No. 2 shows how the different castes are distributed, No. 3 is a map giving the places of residence of people following different trades, No. 4 indicates the distribution of the population, No. 5 mortality rates, No. 6 infant mortality rates, No 7 distribution of land values. Diagrams 8 to 13 show the proposals for dealing with this problem, and are worth studying. This set is also of interest as an indication of a method of distinguishing different areas, &c., which is suitable for black-and-white reproduction. Three plans, showing the density of the population in the Mersey and Dee estuary in the years 1801, 1851, and 1911, illustrate very clearly how enormous has been the increase in comparatively recent times.

The maps prepared for the Regional Survey of the South Wales Area are interesting as being some of the first examples of regional planning and should be compared with later examples, such as the Sheffield set or the studies for the development of the West Middlesex, Doncaster, or Dee-side areas, in Section 5. The civic survey of Birmingham, showing the various uses of property in the city in detail, also shows the extraordinary complexity of defining an "industrial area," should this be attempted. It also illustrates very clearly how dwelling houses are displaced by shops at railway stations and 'bus stops along traffic routes.

One of the best "time zone" maps is a French diagram, showing the district round Paris, which indicates the remarkable fact that many places at some distance are relatively nearer to the centre than parts of the suburbs, owing to better traffic facilities. The civic survey of London, prepared by the R.I.B.A. during the war, shows the excellent results which can be obtained by employing men who have had an architectural training: they may be contrasted with the survey maps of Leeds, which are hung near by, and which convey much useful information without having any of the attractive qualities of the architects' work.

In the town-planning schemes in Section 8, the remarkable feature is the placing of the industrial area on the south-west side of such towns as Bradford, Prestwich, and Warrington; this seems an unsuitable position if one refers to the most interesting and valuable diagrams in Section 1, showing loss of sunshine from smoke pollution . . . where the darkest spot is on the north-east of industrial centres, indicating the drift of smoke from south-west to north-east.

One or two town-planning schemes from Germany and Sweden are shown, which seem to show that English work is considerably in advance of foreign plans in most cases, though in the case of Bremen, the planning of the main roads is well thought out.

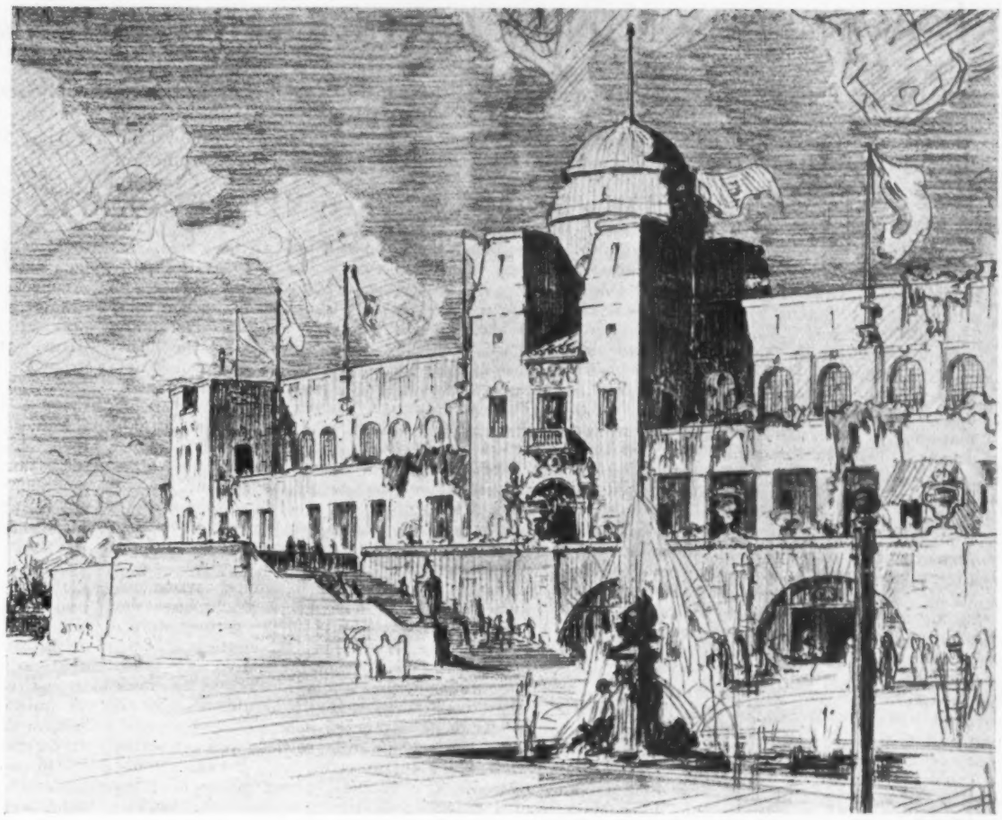
The "preliminary statement map" for Stretford and Urmston is notable, as it provides for a large agricultural belt to the south-west bounded by the River Mersey—this is a good point, as it will give a clearly-defined limit to the agricultural belt and facilitate its preservation. Space does not permit of a detailed reference to the exhibits in Section 6 (Road Forms) which deals chiefly with the construction and lay-out of arterial roads.

Section 3 (City Development) contains much interesting work. France is represented by plans lent by "La Renaissance des Cités," showing the reconstruction plan of the city of Rheims and the plan for the rebuilding of the village of Pinon in the Aisne Department. There are also some reproductions of designs for a competition for the rebuilding of Lille; this was evidently during the German occupation, and it is to be regretted that the designs sent in for the competition recently held are not also shown. The most notable exhibits in this section are Professor Adshead's plan for the development of Plymouth and district, and some clever perspective sketches, also illustrating the same scheme. The drawing is unfortunately "skied," and one cannot see details, but it is certainly one of the most suggestive and imaginative schemes exhibited.

In Section 5 (Joint Town Planning) many instructive and well-thought-out schemes are illustrated in some really excellent drawings. We especially noticed the scheme for the Doncaster region with its ring of satellite towns grouped round the centre (Doncaster), which is illustrated by some remarkably able drawings.

The regional plan of the Dee-side, recently adopted by the joint committee, should be studied, as it illustrates the successful solution of a difficult problem; a ring road diverts the industrial traffic round the city of Chester to prevent congestion.

An excellent set of studies for regional planning for the West Middlesex Joint Town Planning area is shown in this section; it is remarkable to note the comparatively small area occupied by industry in this district. The zoning diagrams in Section 4 are mostly of American or German origin, and not altogether applicable to British conditions; there is, however, a draft scheme for Rochdale, and here, again, we were surprised to find the industrial area was on the south-west side of the town, though possibly this was unavoidable if the necessary railway and canal facilities were to be provided.



British Empire Exhibition, Wembley: Eastern Tower of the Stadium.

MESSRS. JOHN W. SIMPSON, PP.R.I.B.A., and MAXWELL AYRTON, F.R.I.B.A., Architects. (*See p. 577.*)

Section 3a (Garden Cities and Suburbs and Housing Schemes), although of some interest, should, we think, have been omitted, as it tends still further to increase the popular error that town planning and housing are more or less the same thing. It does not appear desirable for obvious reasons to encourage this idea.

Section 7, which is devoted to the illustration of various types of playgrounds and open spaces, both in this country and abroad, is, on the other hand, an excellent feature and has excited much popular interest. We specially noticed a well-planned scheme for the lay-out of a new public park at Blackpool. The comparative diagrams showing the relation of population to parks and playgrounds in Liverpool reveals the fact that these are most numerous in parts least populated, and is an excellent illustration of one of the evils which efficient town planning would prevent.

Last, but certainly not least, in the great Hall is Section 1, devoted to Manchester and District. Here are hung a series of most instructive maps and plans showing public open spaces in relation to unhealthy areas, contours, traffic density, railway, canal, tramway and 'bus route map, &c., and various maps and diagrams referring to Manchester and the industrial centres around. Of these, the most interesting—and certainly the most instructive to the ordinary citizen—are the five maps showing the actual and possible development of Manchester itself. No. 1 shows the city in the year 1845; (2) in the year 1920; (3) as it might have been in the year 1920 if there had previously been town planning; (4) as it might be in 2000 if town planning is not adopted; and (5) as it might be in 2000 if developed on sound town-planning lines. There are similar plans for some of the other towns in the Manchester district.

Gerrard's Cross War Memorial.

The Marquess of Lincolnshire unveiled the Gerrard's Cross war memorial on Saturday last. It takes the form of a social club, and has been erected at a cost of £4,000. Sir Edwin Lutyens was the architect.

TOWN-PLANNING CONFERENCE AT MANCHESTER.

ON this and the following pages we give abstracts of the papers read at the Conference held in Manchester last week under the auspices of the Manchester and District Joint Town-Planning Advisory Committee, of which Alderman Thos. Turnbull is Chairman and Mr. P. M. Heath (Town Clerk of Manchester) Secretary. A report of the opening ceremony appeared in our last issue, and a review of the Town-Planning Exhibition held in conjunction with the Conference is given on p. 588.

TOWN DEVELOPMENT AND RECONSTRUCTION.

AFTER the official opening of the Exhibition by the Earl of Derby on Monday afternoon, a paper on "Town Development and Reconstruction was given by Mr. Herbert H. Humphries, M.Inst.C.E., who said that town-planning practice in this country, with some notable exceptions, appeared to have had its scope largely confined to what might be described as suburban development, or the planning of the more or less undeveloped areas of towns, as contemplated by the Town-Planning Act of 1909. Of recent years, however, the changes which had taken place in methods of transportation had forced to the front the absolute necessity of considerable improvements being undertaken in towns if the necessary facilities for it were to be provided. To that necessity had been added a strong and growing conviction that an extension of town-planning principles to the development of the town as a whole was of overwhelming importance to its well-being, not confined to any particular section, but to all its varied interests—industrial, commercial, and residential. It was becoming increasingly evident that town-planning, in certain aspects, could not be confined to isolated schemes, but that the areas to be planned must often extend far beyond any particular municipal boundary. In fact, to enable town-planning to be satisfactorily and usefully carried out, comprehensive schemes must be applied to whole areas, developed or otherwise, however extensive they might be, which had more or less common interests, such as water supply, drainage, transport, and other great services on the one hand, and manufacturing, trading, business, and residential on the other.

The setting up of the Manchester and District Joint Town-Planning Advisory Committee was a most interesting and valuable step for securing the adoption of a comprehensive scheme covering a large area, but experience did strongly emphasise the absolute necessity for statutory regional town-planning councils to be established throughout the country with certain legislative powers. Unless that was done it was more than unlikely that the results which should be obtained from town-planning would be achieved. While the planning of undeveloped areas involved many and varied difficulties, they were, comparatively speaking, simple as compared with those which arose in connection with the question of planning for the reconstruction and future development of the actual town itself. There were so many established artificial conditions, apart from natural ones, to be taken into account that only the most patient, skilful, and careful investigation, examination, and consideration would ensure the scheme, most advantageous from all points of view to the community as a whole, being evolved.

The objects of town development, planning, and reconstruction, if sufficiently studied by the public, could not fail to obtain whole-hearted support. They were of such enormous value to the life of the community that it was of the utmost importance that every facility should be provided to enable them to be properly appreciated. To enable that to be done, apart from the work of local authorities, the greatest assistance was needed from all kinds of semi-public bodies, which were capable of giving most convincing help. The principles of city-planning were intended to provide for essential readjustment of existing conditions, to estimate for future requirements, and to adopt the best methods of meeting them; to adopt plans for both undertakings based upon the one idea of co-ordination of the whole. It was, of course, very evident it was not possible to actually complete a great reconstruction scheme within a limited time. The cost in the first place would be prohibitive, and, apart from that, the magnitude of the business and other interests of the town would not permit of such drastic methods being adopted. The carrying out of such a scheme was an undertaking requiring great patience, and necessarily covering many years.

While, however, actual fructification of a reconstruction scheme might be tardy, yet there was nothing to prevent the immediate preparation of a comprehensive scheme for town-replanning and development, so that all alterations occurring in existing built-up areas and other developments should be carried out in accordance with it. That would have the advantage of preventing things getting worse, *i.e.*, of the possibility of anything being undertaken which would in any way make more difficult the actual reconstruction work when undertaken. It would also enable all development to proceed upon the lines desired. Once the scheme was settled, reconstruction work could be proceeded with as opportunity offered. The financial aspect of the adoption of a scheme was necessarily one of great importance to both the individual affected by it and the community. In connection with the former's interest, it might be a necessity for the well-being of the community that his use of his property should, in certain circumstances and eventualities, be restricted; therefore in such circumstances he had a valid claim for equitable compensation, based upon the actual net loss he sustained.

Concerning the community's financial responsibilities, it could not be expected that the cost of drastically amending conditions, which had persisted for perhaps a century or more, would be small, but, by the adoption of a gradually and slowly developing scheme, that cost need not be prohibitive. In Birmingham a substantial sum out of revenue was placed on one side annually for improvement work, and, in addition, loans were raised when necessary to make an exceptionally large expenditure. Actual experience of preparing for replanning undertakings had shown that sums so expended, preparatory to actually carrying out the scheme, need not be regarded as dead capital, for while waiting for a definite advance in the particular section of improvement affected, excellent returns had been obtained on the amounts expended. It was expected, too, that a considerable asset would be obtained from the improved value of he surplus lands when it was desirable to dispose of them.

As regarded the regulations necessary in connection with the replanning of the built-up areas of towns, it was clear that certain town-planning powers, modified from those applying to undeveloped portions, were required. Such powers would require very careful consideration, as they would need great elasticity, so that exceptional cases might all be treated upon their merits. The preparation of a comprehensive plan of the area to be planned being the most urgent necessity, the first step to that end was the preparation of a map showing the existing state of the town's lay-out, upon which should be shown in distinctive colours information in regard to present conditions: dwelling-houses, commercial buildings, such as shops, office blocks, banks, hotels, etc., warehouses, factories, manufactories, Government and municipal buildings, churches, schools, libraries, baths, markets, theatres, music-halls, picture-houses, hospitals, police-stations, fire-stations, garages, licensed premises, railways and railway stations, canals and wharves, arterial internal communication roads, rivers, streams, pools, parks, playgrounds, cemeteries, recreation grounds, open spaces, etc. Of the provisions which should be included in a town development scheme, the following appeared to be the most important: general transportation; road and drainage systems, park system and recreation facilities, zoning, and civic and neighbourhood centres.

The prosperity of an industrial and commercial town was indissolubly bound up with the capacity, convenience, directness, and economy of its traffic facilities, which also materially affected the individual convenience and pleasure of the inhabitants. Scientific competition and methods of economical administration of industry were now so keen that no town could afford to have insufficient or indirect means of transport. The question of railway and canal facilities in connection with a development scheme was of such great importance that the apparent lack of interest in town-planning schemes shown by those undertakings, was difficult to understand. The road and drainage systems of a city formed the framework of fundamental element of the whole development scheme, and determined, to a large extent, the boundaries of the unit which should be planned. The question of the widths to be adopted for the different classes of roads was one of immense importance, for to make insufficient preparation now for the future traffic, which it was obvious would require to be provided for, would be unpardonable.

A scheme by which the arterial routes ran in even lines from square to square, the latter forming part of the park system, was probably the finest method of expressing the spaciousness and dignity which it was desirable for a town to attain to. Arterial roads should lead up in the most direct manner to the principal roads and streets of the town. Particularly was it necessary to consider their connections with markets, railway stations, the commercial area, etc., and also the communication means of these undertakings with each other. One of the chief functions of the secondary arterial roads was to give easy access to the main arterial routes from the tributary roads and streets. The provision of sufficiently wide arterial roads was of the utmost importance in connection with the transportation of the people to and from the increasingly far-flung suburbs by rapidly and safely travelling, economically running, independent track tramways or other methods. It was evident, if the safety of traffic on arterial roads was to be improved, any scheme of development must include drastic alterations and provisions at road junctions. The main arterial road must naturally rule other roads connected with it, and junctions should be arranged so as to allow the main road traffic to pass through while the secondary road traffic was compelled to hold up, when necessary.

In connection with the drainage of the area to be planned, the chief points to be considered appeared to be the preparation of a comprehensive scheme for the whole, resulting in the collection and concentration of the sewage at a minimum number of points, thus avoiding what often had happened, the establishment of a quite unnecessary multiplicity of disposal works, sometimes opposite each other, on either side of a stream, frequently in most

unsuitable situations, and seriously interfering with the proper development of a particular district; at times, too, causing expensive pumping of sewage to be undertaken when really quite unnecessary. The natural drainage of the area also required a large amount of attention.

In the same manner in which the roads system of a town was considered so should the park system be; in fact, both systems were largely interwoven, as they depended to a great extent on their successful planning if both were to be effective and if they were to be accessible to the greatest number of inhabitants. The system should include large park areas (some left in a more or less wild condition, if possible), smaller neighbourhood parks, recreation fields, children's playgrounds and parkways. A well-planned park system, co-ordinated throughout, as far as possible, with chain parks, parkways, etc., would assist in creating most desirable residential development, in addition to enabling recreation facilities to be better organised.

Zoning was an extremely difficult undertaking. Its proper solution was of great importance to the future of the town, and it was advisable not to make it too rigid. If zoning was carefully carried out, due consideration being given to the general physical conditions, there appeared to be no reason why the more regular, organised, and symmetrical development of the town should not eventually result in increased convenience for business purposes, and add largely to the health, prosperity, and general well-being of the people.

The establishment of a proper civic centre was of great importance to any city. Greater efficiency and general convenience was met with when the main public buildings of a city were properly grouped together and of easy access from all parts of the town. In considering all centres, the fixing of provisional sites for public and semi-public buildings was of great importance, as such buildings were often dropped down in a haphazard manner in too confined and often inconvenient and otherwise unsuitable positions.

In conclusion, Mr. Humphries pointed out that it was very important not to overload any development plan. The laying down of the main lines of development for all time should be practicable, as they probably would be such as their successors would be bound to follow, but beyond that point it was very difficult, and indeed inadvisable, to travel. It was, therefore, better to leave other details in a somewhat fluid condition, with, however, a tentative scheme in being for dealing with each section as needed.

The chief thing to be desired in dealing with this difficult question was to, as far as possible, obtain such control as would enable the development of the town to be watched and guided in the best way, and it was, of course, only possible to do that if a comprehensive scheme was laid down and the townspeople were thoroughly instructed in regard to the proposals and the reasons for adopting them. It was impossible that such work could be carried out without considerable expenditure, but it was certain that if that money was wisely incurred it would be well spent and bring back a return to the town in health and prosperity.

It could not but be admitted that in this country they were taking up the question of town development not one moment too soon, especially when it was remembered that such work had been in progress on a large scale in Continental cities for nearly half a century, while they had a near example in Edinburgh, where it was taken up with so great advantage as long as 150 years ago.

THE ROAD PROBLEM.

At the Tuesday morning session, under the chairmanship of ALDERMAN DIGGLE (Mayor of Rochdale), Sir Henry Maybury (Director-General of Roads, Ministry of Transport), in a paper on "Arterial Roads and Town-Planning," said road design in its broadest sense could only be securely based on traffic-statistics and charts of traffic-currents. For that reason great interest attached to the general traffic-census undertaken last August for the first time over the entire length and breadth of the United Kingdom. When the statistics thus gathered along the course of all our first-class roads were collated the road engineer would gain a bird's-eye view of the traffic-streams flowing along all the great channels of communication. If repeated at yearly intervals that census would disclose the evolution of new vehicular types, the gradual supersession of less economic vehicles —the national development translated into terms of locomotion.

It was mainly to town-planning that he looked to prevent the throttling of such of the trunk-roads as still traversed open country, and to save the recurrence of Warrington bottle-necks. In several cases already his Department had been able to thread new arterial roads through gaps thoughtfully provided by town-planners. Nothing could be more gratifying than the growing recognition of the arterial road as the spinal column of town-planning anatomy.

Much more could be done to-day by laying down entirely new roads than by conducting surgical operations on the old ones. Through thick-set towns the new parallel roads slashed through slum areas paid better dividends in traffic facilities and human welfare than did the old High-street widened; the new by-pass or ring-road skirting the town prevented the haphazard growth of those ragged fringes which disfigured most urban areas and seaside resorts; a proper pattern and shape were given by a ring-road to the circumference of the town, resulting in an orderly, pleasing, and profitable development, while the old core of the town gained by the diversion of much of the traffic which formerly clogged its narrow streets. The aim should be not to see how much traffic could be forced through the ancient centre but rather how much could be deflected along roomier channels.

There was little reason to stint the width of a new trunk-road. In many instances the land was willingly given by owners; where owners were less open-handed the chief element in their claim was usually severance, which is equally grave whether the road were 60 ft. or 100 ft. wide. Judging by the past they were not likely to make roads too wide. He could not call to mind many existing highways against which he felt inclined to level reproaches of extravagant width. The risk of a bold course in the choice of width was almost insignificant. No one would dream of advocating actual construction on a needlessly generous scale to-day. Let construction be confined to the barest needs of the present, but they should take care that, once and for all, sufficient land was acquired and fenced to provide for every possible expansion of the future. Prudence demanded, however, that the land so fenced should be left trim and tidy, and its surface sown with grass or otherwise prevented from becoming a noxious weed-plot.

He would like to see a Regional Town-Planning Committee covering the whole area between Manchester and Liverpool. Ample work could be found for such a Committee, and for the top line of their agenda he would be inclined to reserve a project which ought to stir the dullest imagination—a new Liverpool-Manchester road, striking clear of built-up areas, leading traffic away from overcrowded streets, opening to modern development—industrial and residential—a 30-mile stretch of country now lying fallow—a route 150 ft. wide between fences, with two 30-ft. carriageways, spacious margins, no check, let, or hindrance to traffic from end to end. That was a scheme worthy of the county, and better adapted than any other to provide occupation for the thousands of workless. Postponement would remove the project from the range of feasibility; obstructive buildings and enterprises would grow up, and there would be another lost opportunity on our list of regrets. As a useful half-measure, something was perhaps to be learnt from the example set by one of the Home Counties, which had recently decided in a somewhat similar case to share with the Ministry of Transport the cost of land acquisition, leaving for later discussion the financial and engineering problem of actual road construction.

In thinking in terms of town-planning they must keep before them the necessity for providing ample transport facilities. If they were to take crowded populations from built-up areas in urban districts into the country they must see that happiness and comfort in their new abodes are not unduly marred by slow, inadequate, or costly forms of locomotion. Generally speaking, where traffic facilities have been exceptionally good, building has followed. There was an instinctive desire to push still farther into suburban territory, and so long as good travel facilities were provided the town residents would not much mind some additional distance to their daily travel to and from business.

Designers of arterial roads should extend their views far beyond the fence line of the new highway. They had to consider how the immediate frontages could best be utilised, how the benefit of the new stream of traffic could best be distributed over the successive strips of hinterland, what height should be prescribed for fences, what set-backs for buildings. The entry of intersecting roads must be so devised as to create the least possible disturbance and danger to vehicles following the main route, and there was much to be said for the formation of an island in the mouth of the intersecting road, serving to check and divide the traffic entering the arterial road.

Road engineers had this in common with town-planners: their most distant vision was not distant enough. They were aiming at a target far beyond their view; they knew it was there, they knew the direction, they tried to calculate the distance; many of their doubts would not be resolved until they reached a higher plane.

Discussion.

SIR EDWIN STOCKTON, who proposed a vote of thanks to Sir Henry Maybury, said he thought they were agreed that the first essential in their efforts to develop trade was cheap and efficient transport. With reference to the proposed new road from Liverpool to Manchester, he thought the circumstances which rendered this colossal expenditure necessary should be very carefully examined before the scheme was put into execution. The present condition of roads between Liverpool and Manchester was very bad, but it was a question whether it would not be better to improve existing roads rather than construct the new arterial road. They would like to know how this new road was to be paid for: was the cost to be met by tolls on the users of the road, or by a charge on the rates, or by some other method? If the cost was to come on the rates he felt that all ratepayers should have equal facilities, including the railway companies.

ALDERMAN BENNET (Warrington) referred to the damage to property due to the congestion of heavy traffic through Warrington. He made a plea for the preservation of the amenities in towns, but said that at Warrington schemes of improvement had often

resulted in the destruction of some building of interest.

Colonel Nall, M.P., said the proposed Manchester-Liverpool road must be considered as a main artery in one industrial area. If tramways formed part of this scheme the track should preferably be on one side of the road or one on each side of the portion reserved for fast traffic.

Mr. L. C. Evans (Town Clerk, Salford) said the traffic between Liverpool and Manchester was not adequately dealt with by the railways, and the proposed new road was a necessity. He considered it would be sounder economic policy to pay the £3,000,000 required and give employment than to spend £5,000,000 in relief, as was being done at the present time in Manchester and Salford. He hoped one result of this conference would be the formation of a joint committee to deal with town-planning problems for the whole industrial area of south-east Lancashire.

Councillor Wilson (Liverpool) supported the idea of the formation of a joint committee of all authorities interested in the new road, and thought they should agree on a scheme before approaching the central authorities in London. He did not agree with Colonel Nall's suggestion with regard to the position of tramway tracks, as experience at Liverpool had shown that the best position was on a reserved space in the centre of the roadway.

Councillor Cunliffe (Lord Mayor-Elect of Manchester) seconded the vote of thanks.

Sir H. Maybury, replying to the vote, said he entirely agreed with the suggestion made by Councillor Wilson of Liverpool, and wished to make it clear that he was not the author of the scheme for the new Liverpool-Manchester road, which was a Lancashire scheme. On the question of the allocation of the cost of such schemes, he referred to the somewhat similar problem which had occurred in connection with the new arterial road at Newcastle, where it had been agreed that the question should be referred to the arbitration of his department. Generally speaking, the cost of arterial road schemes was divided between the Government and the local authorities, each of whom paid half the total amount. This also applied to the upkeep of such roads and he would further point out that the Government provided half the cost of maintenance for all classified main roads.

REGIONAL PLANNING.

At the Tuesday afternoon session, under the chairmanship of Alderman C. Royle (Mayor of Stockport), in a paper on the subject of regional planning, Professor P. Abercrombie said it must be understood that the term "regional planning" was intended to signify something much wider than the need that had always been felt, and had been very largely exercised in the past, for a single town to obtain control of developments, which though they might be outside the borders of its jurisdiction, were manifestly merely offshoots of its own growth. The ideas of Greater London, Greater Paris, Greater Berlin and Greater Brussels were certainly no new things, though the carrying out of those extensions of civic powers had frequently remained at the stage of suggestions and ideas evolved by the central town, but resisted by the smaller communities on the score of cost. Furthermore, the bugbear of city extension had always been at the back of one-city regional schemes.

The regional scheme in the really modern use of the term was concerned with the development of a wide area in which, though there might be, and probably was, one or more dominating centres, at the same time the interests of the lesser authorities were equally involved. Thus, in Massachusetts there was the city of Boston, though no one would or could suggest that the rest of the State was a suburban development of Boston. In one respect the Boston regional scheme did not perhaps carry out the exact programme which was to-day meant by regional development, for it would appear to have proceeded by means of individual aspects rather than by a treatment of the whole. That was, perhaps, inevitable in pioneer work, but what was of absorbing interest and value was that they had actually succeeded in carrying into execution and successful working one of those particular aspects, namely, a regional park system. It was, perhaps, natural that in America, where so much attention had been given to systematic recreation, that should be the first aspect to be dealt with; but apart from that one felt that in many ways open spaces were the ideal subjects for proving the need for regional action. Much as one might like it, one could not create at will tracts of country suitable for open spaces, but had to take what Nature had given, or more properly speaking, what in many cases had been left unspoilt of Nature's gifts. They did not always exactly coincide with the artificial boundaries or human developments which had led to the need for parks. It was quite possible, of course, and it was frequently done, for a local authority to purchase parks outside its area, but when that was done there was a certain feeling that the open space was going to be used by people who had not paid for it, and the only satisfactory solution is joint action and joint financial responsibility. That was the keynote of regional planning, and as the whole business sooner or later would resolve itself into a question as to who was to pay for the objects aimed at and as the park system of Boston gave a system of assessment and joint usage and completely successful working, he suggested that all interested in carrying regional suggestions into execution should make a thorough study of that pioneer scheme by which parks to the extent of 15,000 acres and 25 miles of parkways were maintained by some 38 local authorities.

Of a later date than the park system was the Homestead Commission, started in 1913 originally for housing purposes; but, as had happened with housing organisations elsewhere, it was soon found that town planning was necessary to precede housing, and accordingly the Homestead Commission had been merged into a co-ordinating body which was charged with the setting-up of local planning boards throughout the metropolitan district, and apparently by means of actual conferences that central board intended to co-ordinate the work of the separate local boards. It would be interesting to watch the result of those annual conferences, and to see whether a regional plan would be evolved carrying the scope of the regional park system into all aspects of civic development.

This country had certainly been less advanced, and having pushed ahead with fair success the preparation of town planning schemes there had been a danger of perpetuating on a larger scale some of the errors of the estate development of the nineteenth century, in which schemes of development which might be good in themselves had not been sufficiently wide in their outlook to meet neighbouring needs. Professor Geddes had directed attention to careful study of the population map, and showed that in very large parts of this country it would be disastrous for any town to think it possible to look after its own affairs without considering the needs of its neighbours. Not only were there existing groups of towns and urban communities, corresponding in each case except the metropolitan one, with well-worked coalfields—but there were the rising districts in which it was possible to attempt some avoidance of the drawbacks which were almost ineradicable in the older regions. It was necessary that those coming districts should prepare a definite plan of growth so that the most efficient use might be made of their natural possibilities.

With the older districts they had to walk more warily: the first region to be considered was perhaps the most difficult physically and administratively—the South Wales coalfield. There it was thought necessary to set up a commission and take evidence from all sections of the community as to the necessity for regional action, for that at once brought to the fore the boundary question. If the increasing population were to be housed under reasonable conditions it was necessary to go outside the congested valleys into the agricultural plain adjacent, half-an-hour's journey farther from work, and in another local authority's area. Once for all, backed by all the evidence of mine-owners, workers, and local authorities, was the need for joint action definitely demonstrated. So logical and all-compelling was the result of that study that county councils appeared ready to sign their own death warrants, and the only discordant notes came from some of the owners of delectable spots in the agricultural plains who foresaw an avalanche descending from the Pennant Hills and human torrents issuing from the carboniferous valleys to settle like an alluvium on their sequestered acres. The South Wales report was not really a regional survey (though so-called), and much less a regional plan, but a preliminary study and proof of the need for regional planning; and it is well worth reading as a text book as to what regional planning means and what a regional plan should contain. What was not perhaps laboured as fully as it might have been was the need for a regional survey prepared in a graphic manner in order to emphasise the essential unity of the region. Whether or not it was essential to prepare a survey for an individual town, there could be little doubt of the need for a survey where many authorities were involved, and the facilities for study of joint problems had not hitherto existed. Roughly speaking, the more fully developed the area, the greater the need for a complete survey. Where, as in the case of the Doncaster regional planning scheme, the land was still largely agricultural with only one or two towns and a group of villages the survey could be reduced to a minimum. Road traffic, the materials for a survey of which it was hoped would in future always be available from the Ministry of Transport, was naturally the first that would be demanded. In the case of Doncaster, however, there was a special need which was very largely at the basis of the whole scheme, namely, the probability of surface subsidence owing to coal working. The effect of this survey was to restrict all residential development to land above the 25-30 ft. contour, with all the consequential need for careful planning and grouping of the population. In the Manchester district the beginnings of a regional survey were in existence at the time the Joint Committee was formed; that survey was prepared owing to special war conditions, and though by no means complete it was to be hoped that at least in two of its aspects—road traffic and open spaces—it would prove useful to the scheme that was at present being evolved. In the case of the Chester and Deeside regional planning scheme no direct preliminary survey work was undertaken. There, perhaps, the most necessary thing was a study of the existing mineral resources; but again, as in the Doncaster area, the land being largely undeveloped, careful scrutiny and study on the spot was enough in most cases to make clear the general trend of developments. It also happened that the Deeside scheme formed part of a wider regional survey centering at Liverpool University, with its headquarters in the Geographical Department. That survey, which aimed at having each section prepared

by an expert in the subject, with the necessary co-ordination secured by constant meetings of the heads of sections, was the most comprehensive framework of a regional survey that had yet been attempted. Its promoters considered that one of the chief functions of such a survey was to give the guiding lines upon which all future development should be based; in other words, that it would not simply content itself with being a record of the existing state of affairs, but should aim at foreshadowing the lines of growth. Thus, taking perhaps one of the most interesting patches of country geographically to be found in the north, namely, the Wirral Peninsula, it would have to be determined, if a satisfactory scheme were to be evolved, what was the probable destiny of that piece of country. Was it to be preserved as a gigantic residential suburb of Liverpool, or were factories to be encouraged to spring up in almost any situation they wished? Both banks of the Mersey were about to be industrialised, and the far side of the Dee (for which a regional scheme had already been prepared) had been shown unquestionably to tend towards industrial development, though of a different type from the Mersey. That was no simple problem to be resolved off-hand, but required a graphic presentation of all the facts not only of to-day but of yesterday in order to have some possibility of visualising to-morrow.

Turning to regional planning proper, a different method of approach was necessary in different localities—where less development had taken place greater freedom of suggestion was possible. Thus at Doncaster, with large tracts of land debarred from housing, it was necessary to indicate clearly-marked centres at which residential development could take place and encouraged in order to provide communities of workpeople for the factories which would be located on the low-lying land. Furthermore, the collieries, at present situated at an average of about three to four miles apart, themselves promoted the growth of separate village communities. The result, therefore, instead of a single homogenous town of the size, should be a series of communities complete as to their civic functions, but of a size limited in most cases to 20,000, though extending in one or two cases to 30,000, inhabitants; separated by farm land or park strips, but all communicating directly with Doncaster as their natural metropolis for trade, culture and recreation. A very complete and even drastic system of zoning was necessary to secure development upon those lines, and it would be interesting to watch how the town-planning schemes were adequate to realise the objects of the plan.

In the Deeside scheme there were many extremely interesting and complicated problems, not the least being that of the city of Chester itself. The rôle which Chester should play in the regional development was very carefully gone into by the Committee and the interesting position was observed of a town voluntarily deciding to keep factory development of the heavy-trades type at arm's length, forgoing the consequent increase of rateable value, in order that its amenities should not be destroyed. That must not in any sense be regarded as indicating that Chester was not prepared to develop very materially as a reaction to industrial development lower down the Dee—it merely meant that a full regional consideration showed that its true function and interests lay in other directions than directly industrial. Outside Chester it was possible to evolve an almost detailed zoning plan for the lower Dee Valley, in which the heavy trades flanked the river, the residential areas occupied rising ground on both sides, and (perhaps the most hopeful feature of the scheme) an agricultural belt separated the two. That agricultural belt was not to be used for residential purposes unless the latter were necessary for agricultural pursuits, and the only change in its use to be permitted was that it might eventually practically all be absorbed for recreation space.

The Manchester district presented greater problems for the purposes of drastic zoning, as it must be extremely difficult to impose restrictions on the limited amount of free land which was left. But it would seem that in the direction of positive planning suggestions there was scope as well as manifest necessity for producing a South-East Lancashire and North Cheshire park system. If a definite standard, such as one acre per 250 people, were agreed upon, and the most likely land scheduled it should be possible on the lines of the Boston park system to evolve a satisfactory series of open spaces quite irrespective of the local authorities in which the different parts were situated, but distributed in such a way as to meet the needs of the populations contiguous.

The very existence of a Joint Committee met together to consider what lines of development would be of mutual advantage was a new departure of the most helpful nature. Whereas, before the fear of city extension, or the preparation of rival town-planning schemes, each extending into the other's area, and general mutual suspicion had existed with a regional committee, an entirely new atmosphere was apparent. An extremely useful yet limited function of a regional committee was to introduce harmony and common action in those details of town-planning schemes which were not part and parcel of their main structure; such, for example, as common definitions for zoning regulations, numbers of houses to the acre, heights of buildings, and space about buildings. It was certainly most desirable that neighbouring authorities should employ those terms, definitions, and restrictions in the same sense. But that harmonising of town-planning schemes was not sufficient in itself; it was impossible to produce positive results from negative action. There must be constructive regional planning of a positive nature. The road system might be devised by the Ministry of Transport, but it would probably be better for the authorities to put forward their own scheme, to be criticised by the Ministry. In spite of the difficulties already mentioned for fully or partially-developed areas, some regional zoning should be attempted, and in the lesser developed areas some attempt to concentrate civic interest at definite centres. Then regional action will benefit the regular municipal services, such as water supply and sewage disposal, and much money would be saved by joint action being the usual rather than the exceptional method.

Another and somewhat unexpected advantage which would emerge from a regional scheme in certain cases was when the business exploitation of the district had been piecemeal. For example, in the Deeside region, mine pumping, railway accessibility to mountainous areas, and the reclamation of the Dee had all been considered as isolated propositions; but as the result of a regional scheme it was clear that they were entirely interrelated, and the expenditure of capital could only be justified if it aimed at the production of an industrial machine which functioned efficiently from the production of raw material to the delivery of the finished goods. Regional planning, therefore, was by no means limited to the strict functions of the local authorities or to the powers conferred on them under the Town Planning Acts, though its principal recommendations would largely come within their scope. It aimed, indeed, at setting before the community a scheme for its growth upon rational lines, having in view its industrial prosperity and the health of its inhabitants; and, above all, it attempted to eliminate that parochialism which was inevitably set up by the artificial boundaries between local authorities which were so necessary for the detailed carrying out of their services, but which without a regional committee tended to produce isolated communities resentful of any interference with their own existence to meet the needs of their neighbours. It would, therefore, seem obvious that a Regional Committee, when once set up should be continued; having evolved a general policy of development most suited to the district, it would become the natural assessing body to deal with the question of benefit and contribution without which no regional scheme could be carried into execution.

Discussion.

Councillor Worthington (Ashton-upon-Mersey) said the question of regional planning was an important item in national evolution which had been stimulated by events consequent on the war, such as the resettlement of the population owing to changed conditions and circumstances. He thought it desirable to provide subway access to gas, water and electric mains and sewers, so that the surface of the road should never be disturbed.

Mr. H. H. Marshall (Clerk to the Doncaster R.D.C.), said he thought one of the chief advantages of a regional scheme was that it converted many of those who had previously opposed town planning. He was not in favour of the lecturer's suggestion with regard to the idea of satellite towns grouped round a common centre.

Mr. Ebenezer Howard said he had listened with great interest to the paper because many years ago he had projected the idea of a group of small towns forming separate communities separated by an agricultural belt, and he was glad to see one of his early ideas given a practical form by an expert on the subject of town planning.

Mr. J. P. Orr (late Director of Housing, London County Council) referred to the importance of preserving open spaces by regional planning, and thought there was a danger that the same thing would happen in the Manchester district as had occurred in London, *i.e.*, that there was a danger of the open spaces of undeveloped building land used for recreation being built over unless they were acquired under a regional scheme.

Mr. E. Barker (Garden Cities Association), said the cost of town-planning schemes was no greater than it would have been without town planning, but that the expense was better co-ordinated.

Councillor Shawcross said the difficulty in allocating the cost of a regional scheme was due to the difference in the rateable value of boroughs—a penny rate in a small borough might amount to £50, whereas in Manchester this would bring in £2,300 to £2,500.

GARDEN CITIES AND SATELLITE TOWNS.

At the evening session the chair was taken by Alderman J. Fearnhead (Mayor of Chorley).

In the course of a paper on "Garden Cities and Satellite Towns," Mr. Ebenezer Howard described what had been done at Letchworth and Welwyn. He pointed out that before the war there were on the Letchworth estate about 1,000 cottages for working people erected by various agencies, chiefly public utility societies. These cottages cost from £150 to £250, and were let at rents rising from 4s. 6d. to 10s. 6d. a week, including rates. By that means they had succeeded in housing a considerable number of workers in comfortable homes near the scene of their daily work. Naturally the workers, especially those with families, appreciated these conditions, and a good many men had actually refused to leave the town and go elsewhere, even though they had been offered higher wages, and that chiefly because they and their families enjoyed very much better health.

But the satisfaction that one felt in seeing so many healthy children who had been far from bonny when they were living in crowded tenements elsewhere, occasioned bitter disappointment when they saw hundreds of people who had been working in the town, going off late in the afternoon on foot, on bicycles, 'buses and trains to their homes, sometimes a good many miles off, and to conditions of life which were by no means as desirable as those that prevailed in their town. Why did that condition of things exist? It was simply because the numerous housing societies at Letchworth could not raise, on terms of 4½ and 5 per cent., the funds required to reduce this to-and-fro movement to proper and reasonable dimensions.

After the war the Letchworth Council succeeded in arranging with the Ministry of Health that 770 cottages should be built on the estate. But the cost of each of these cottages was more than £600 greater than the cost of cottages with equal accommodation built before the war. If these 700 cottages had been built before the war during those preceding years each of those cottages might have been fulfilling its true destiny as the home of rosy-cheeked children, and would have done not a little to lessen the serious overcrowding which existed for a time in Letchworth. They would perceive that that was but a single, though very clear, demonstration of the terrible losses which the nation had been suffering owing to its delay in dealing boldly and generously with a problem which ought to have been settled long ago.

What was the lesson to be learned? It was surely that the nation had to do its duty some day. Each day's delay made the performance of the duty harder, and the longer the housing problem remained unsolved, the more costly would it be to solve. Let it not be said that the nation could not afford that the workers should be housed properly. On the contrary, they could not afford that the workers should be enfeebled, discouraged and demoralised by living under the conditions in which millions of their people lived. He knew that there was a ridiculous notion abroad, held by people in authority, that that was not the time for spending, but for saving. On the other hand, he affirmed that the truest method of saving was to spend wisely, and that was more necessary after years of expenditure in that most wasteful of all forms of spending—war.

TOWN PLANNING.

The proceedings on Wednesday morning were presided over by Councillor James Barritt, J.P. (Mayor of Rawtenstall).

MR. F. M. ELGOOD, in a paper, entitled "Town Planning Schemes," said one of the first good effects of the consideration of town planning was that it made people think in a way they had not probably thought before. Living under conditions, whether good or bad, people got so accustomed to their environment that it seldom occurred to them to think how such conditions arose, why they should be there, or how different they might have been. Town planning was one of the most important features in civilised life, and at the same time one of the most popular sciences and within the reach of all.

Town-planning schemes might differ considerably in regard to the details which might be included. In some cases only the more important outlines would be considered advisable, leaving the details to be filled in or arranged later, or in some areas it might be desirable to provide for definite development and in others for general provisions only. The chief factors of the problem, which must in any case be faced, were as follows:—

(1) The area of the scheme. That would have to be very carefully considered in the light of the relation of one part of a district to another, and particularly in regard to any part of the local authority's area which was built up. The area would probably include the whole of the area of a town council or an urban district, except such portions as were entirely developed, and it might also include any part of an adjoining district. In the latter case, an opportunity was afforded for co-operation between one or more local authorities and the setting up of a joint advisory committee of several local authorities. There was everything to be said for planning for a large area; indeed, on many important points it was impossible to secure the benefit of town planning if limited to small areas, sometimes disconnected and working on independent lines. Questions of roads and transport particularly required the linking-up of considerable areas.

(2) In most large areas the problem of road communication and transport divided itself under four heads:—

(*a*) Communication with the chief business centre or centres;
(*b*) Inter-communication between the various parts of the area;
(*c*) Main-road through communication;
(*d*) Widening of existing roads.

The old idea of a uniform by-law width for all roads whatever might be the traffic they had to carry it was hoped was now exploded. Constantly one saw three or four parellel roads all well paved, curbed, and channelled, any one of which might be an equally convenient approach to a certain point, when one only was really needed; by a slight modification of the planning, traffic could be easily diverted on to the one road and the others could then be of more economical construction and much quieter and pleasanter to live in.

In regard to wide trunk roads, it should be clearly understood that the cost to the ratepayer was likely to be considerably less under town planning schemes than would be the case if made independently—not that any unfair burden need be cast upon the landowner. An equitable arrangement would seem to be that, unless in exceptional cases, the landowner should give the land required but should only be called upon to bear the cost of road construction to the extent to which he would be liable under the ordinary by-laws, the local authority undertaking the liability, as and when required, for the cost of construction of any excess width. It was true that the landowner would lose some of the depth of a building plot, according to the width of the road, but he would be likely to be more than compensated by the increased value of a frontage to an important through road. In the case of the arterial roads now being made under the Unemployment (Relief Works) Act, 1921, it was understood that in very many cases landowners were giving the land free in consideration of the valuable frontages which would be made available to them.

It might be difficult to do so, having regard to the nature of the interests concerned, but the subject of railway extensions and new branch lines should certainly have consideration. Nothing was calculated to ruin so easily the best laid schemes of development as the subsequent making of a railroad, provision for which had not been foreseen. Tramways, of course, would have consideration, and the width of main roads would be determined accordingly.

(3) Connected with the laying down of the lines of new roads and widening proposals was the fixing of building lines. There were two considerations which affected that question. The first was more particularly to secure that there was sufficient space about buildings at the front to provide for a sufficiency of light and air for health's sake. The standard which had gained general acceptance, where buildings were not likely to be more than two or three stories high, was a minimum distance of 70 ft. between the houses on either side of a road.

The other consideration was to secure that on traffic roads houses should be set back sufficiently so that they would not suffer unduly from noise and dust; and on main roads, in addition, that facilities for future widening were reasonably preserved. There was a tendency now to lay out roads very much wider than was dreamt of even 20 years ago, and on certain roads it might not be unreasonable to require anything up to 150 ft. and over being kept open between the opposite sides of a street.

(4) It was of vital importance to every town community that each part of the area of land within its present and future sphere of influence should be put to the use for which it was best adapted and which would most conduce to the benefit of the community. It had come to be recognised in this respect that the interests of the community and of the landowners were really not antagonistic. It was to prevent haphazard development, guided perhaps only by what appeared to be the immediate interests of owners, that a town-planning scheme sought to regulate and control the use of land in the real interests of both. The main divisions into which "character" fell were commercial, industrial, and residential areas, and those must be studied in relation to the town as a whole. While it was desirable to determine broadly the general character of buildings in the various areas, it would be wise to allow for some discretion to be exercised by the local authority, by reserving to it power to approve, within certain limits, detailed schemes of development.

(5) While no dispute could arise as to the importance of regulating the use of land to prevent its being so crowded with houses or other buildings as to prejudice health, regulation was also desirable in order to preserve the amenities of residential districts. A restriction of four houses to the acre and one of twelve to the acre had come to be considered normal as the greatest and the least restriction with various gradations in between. Those limitations would mean that on certain defined areas—such, for instance, as a separate parcel of land or a block of land in one ownership—the average prescribed number of buildings to the area should not be exceeded. But to allow freedom of development and at the same time to prevent overcrowding a usual proviso would be that in any case on any single acre net—*i.e.*, excluding roads and open spaces—not more than 20 buildings should be allowed to be erected. Even this, however, would not be a sufficient safeguard without a restriction upon the proportion of the curtilage which might be covered with buildings. That proportion might be fixed at one-fourth in the case of dwelling-houses and one-half in the case of shops, warehouses, &c., with certain latitude where buildings abut upon open spaces or upon more than one street.

(6) The height of buildings must, of course, be considered in relation to air space and building lines in front of buildings as well as in relation to the width and importance of streets and the character and use of the buildings themselves.

(7) A most valuable opportunity occured in the making of a town-planning scheme to provide for a sufficient area of land being earmarked, both for present and future needs, as parks, open spaces, recreation grounds, and children's playgrounds. Each large centre of population, present and future, should have a recreation ground, while for children a number of small playgrounds should be set aside. Allotments should also be amply provided.

Discussion.

COUNCILLOR S LAWCROSS said it was a great pity authorities did not all bring their regulations up to the same standard, and that, therefore, houses were not as good as they should be. Small local authorities had no power with regard to many matters of importance. to preserve the amenities of their boroughs. He considered, with regard to roads, that 70 ft. between houses should be insisted on as a minimum. In the Manchester district the subject which was of greatest importance was the settling of the use to which different areas could be put, which was known as "zoning." He thought this would increase the value of the land and benefit the landowners as well as the community.

MR. CROSSLAND (Assistant Engineer, Bolton) read some notes on the subject prepared by the Borough Engineer with regard to the history of town planning in that town for the past century.

MR. STEPHEN CHILD (Boston, U.S.A.) said the experience of similar conferences and exhibitions in the United States had been that the effect was transitory, and they had, therefore, formed "commissions" to keep up public interest and carry out the proposals made at such meetings.

ALDERMAN TURNBULL (Manchester) said experience generally showed that the bigger the landowners the better they were to treat with. In the matter of road construction the landowner paid, as development took place, his share for 50 ft. of the width, and the Government contributed half the remaining cost. He thought that the amount of the necessary contribution by the local authority would be greatly reduced by the increased rateable value of the new frontages on the road. For Manchester they had road schemes estimated to cost £1,000,000 ready to meet the unemployment problem during the coming winter

MR. ELGOOD in his reply, said compensation was not payable in respect of work which was essential, but for damage to property. On the other hand, if benefit to landowner could be proved there might be a good claim to a share in such benefit. His advice on this subject was that it was always better to agree with landowners if it was at all possible.

PROGRESSIVE TOWN-PLANNING.

At the Wednesday afternoon meeting, under the chairmanship of Alderman George Barker, J.P. (Mayor of Salford), MR. GEORGE L. PEPLER, F.S.I., Past-President Town-Planning Institute, said that unless the development of their towns was governed by a general plan, those whose duty it was to safeguard and improve the health of the community and those interested in its material progress could have no solid basis to go upon because there could be no guarantee that a good piece of work in one direction would not be vitiated by independent action in another; or because the surroundings were not under control, or would not show far less fruitful results that were warranted, because other efforts were not co-ordinated. For example, in a town-plan the most practical routes for sewers and service mains could be reserved, and, as the same scheme would settle the character and density of future buildings, the maximum capabilities and types of service that would be required could be estimated with much more certainty than had been possible in the past, and both futile expenditure and costly relayings might be avoided.

The aim of the town-planner was to avoid the waste that inevitably accompanied piecemeal development, and, in consultation with all those on whom the prosperity of the community depended and those who were in charge of its welfare, design a framework within which all their progressive and beneficial activities might have the fullest possible scope to develop to mutual advantage.

Another advantage of a plan was that if work had to be found owing to a crisis of unemployment, something that really needed doing could be undertaken. The method of town-planning was first to study and analyse, regionally, as far as possible, existing local conditions and prospects (it was extraordinary how little thought had been given to that in the past and how much ignorance there often was—because the facts had never been collected, collated and published—as to the resources and possibilities of a neighbourhood and as to the origin of disabilities that were experienced but not understood), followed by the preparation of an outline plan assigning to each part the use that would seem best to forward the prosperity of the community, and laying down the line of inter-communication. Although lack of provision in the past has landed them in much expense and loss of efficiency to-day, prophecy also had dangers, and therefore schemes would contain elastic provisions so that details should not be fixed until the proper destiny of the section in question was determinable. Should the whole conditions of the district suffer a complete change, then a new scheme could be prepared to supersede the original one.

Motor traffic was increasing every day, and therefore in town-plans they had not only to provide for the needs of to-day, but must have regard to the requirements of to-morrow; otherwise they must expect to suffer from congestion of the arteries, a disease that sapped efficiency and one very expensive to cure after building development had taken place. Up till the advent of town-planning, all roads were being made of the same width and construction, for whatever purpose they were to be used, and that was, of course, necessary when there was no general plan which would, in effect, dictate the use. Having the progress of motor traction in mind, town-planners would want to provide ample width of vision on roads, but would only actually pave the width required for the next few years as, having the land, that could be increased readily as required.

Another progressive feature that would appeal to the public and to local authorities was aviation. The importance of that matter could hardly be exaggerated in connection with town-planning. Firstly, sites that offered good landing facilities were not common and, therefore, it was most necessary to reserve the right one; secondly, linking up the aerodrome with a good road service would enormously increase its efficiency.

One of the most encouraging and progressive signs to-day was the formation of Regional Joint Town-Planning Committees, such as the one under whose auspices they met. Without such a joint committee the disadvantages of piecemeal estate development might be accentuated by piecemeal town development. He suggested it was worth considering whether the Town-Planning Committee of a Council or Region should not become in effect a Development Committee, continually investigating the town's activities, in co-operation with the people responsible for them, in order to see how the various parts were functioning, detecting the obstacles that impaired efficiency, noting where there was overlapping and, therefore, waste, ascertaining for which activities there was the greatest future and how the accomplishment of that future could be helped forward by arrangement or rearrangement of site facilities.

It was a common complaint that the ordinary man took little interest in local government. Let the City Fathers show their constituents in graphic form a plan of the type of city they were aiming at, and he believed they would at once arouse interest and enthusiasm. There were many matters of principle that wanted to be freely discussed. For example, was it sound to let a town spread and spread from one centre, or must not that centre get hopelessly congested? Therefore, might not a better plan be to develop subsidiary centres, closely in touch with the main centre but kept distinct by intervals of open space utilised for recreation and food production? The type of town-plan they adopted depended entirely on the answer to that question, provided they were prepared to face up to the consequences of adopting the method they knew to be sound.

Another problem to face was the amount of playground space that was really required in order to keep people physically fit, and how it ought to be spaced so that the drudgery of reaching it might not impair its benefit.

Discussion.

MR. THOMAS ADAMS in proposing the vote of thanks referred to conditions in Canada, and said that in London (Ontario) the rates were not so high as over here; more was paid in upkeep of roads, &c., but there was nothing to pay for expensive street widenings. He thought the question of planning for industrial needs was sometimes overlooked; co-operation in such matters as the planning of arterial roads was a matter of considerable importance. With regard to housing conditions in this country, it should be remembered that slums were not due so much to bad building as to undesirable surroundings, and the depreciation in the value of premises depended more on situation than on the actual value of the building.

MR. J. E. JARRATT (Town Clerk, Southport) said he thought this gathering would give citizens a better appreciation of the problem and a certain amount of patience in awaiting results. He particularly complimented Mr. Pepler on putting economy and efficiency in the forefront of the reasons for town planning. He thought the omission of the application of the Town-Planning Act to built up areas was a defect which would have to be remedied. He would like to ask Mr. Pepler what, in his opinion, was the proper proportion of open spaces to a built-up area.

MR. PEPLER: This is not yet definitely settled, but if you want games to be played it should be in the proportion of 1 to 5.

COUNCILLOR SAWCROSS said he thought the proportion should be 1 acre to every 500 persons, as the built-up area would generally contain business premises, &c., in addition to houses.

ALDERMAN TURNBULL said he hoped that Manchester would become the Parliament house of the industrial area of Lancashire for those questions.

[Our report of the conference will be concluded in our next issue.]

HOUSING AND TOWN-PLANNING NOTES.

Overcrowding in North Kensington.

An office to give information as to housing conditions in North Kensington was opened at 164, Church-street, Kensington, on Tuesday last. There a three weeks' intensive campaign, culminating in a meeting in Kensington Town Hall, on October 27, will be waged to arouse public opinion and to call attention to the acute house shortage.

In a paragraph published last week, calling attention to this movement, we stated that the density was 570 persons to the acre. It should have been 370 persons.

Loans to Companies for Improvement of Houses for the Working Classes.

Under Section 67 of the Housing of the Working Classes Act, 1890, the Public Works Loan Commissioners are empowered to advance loans out of the funds at their disposal, to certain companies, societies, and individuals for the purposes of constructing or improving, or of facilitating or encouraging the construction or improvement of dwellings for the working classes. Under that Act the amount of money that could be advanced by the Public Works Loan Commissioners could not exceed one-half of the value of the properties in respect of which the loan was obtained. Section 4 of the Public Works Loans Act, 1922, provides, however, that, in the application of the above Section to any company established for the above-mentioned purpose, which does not trade for profit, or whose constitution forbids the issue of any share or loan capital with interest or dividend exceeding the rate for the time being prescribed by the Treasury, the money to be advanced by the Loan Commissioners to such companies, on the security of a mortgage of any land or dwellings solely, may be increased to 75 per cent. of the value of the land or dwellings to be mortgaged; but in such cases the Commissioners are required by the Act to obtain, in addition to the mortgage, a further security of such value as they may think fit.

By minute dated 29th ultimo, the Treasury have for the time being fixed at 6 per cent. per annum the rate of interest or dividend on share or loan capital which must not be exceeded by any company wishing to obtain such loans. The present rate of interest fixed by the Treasury in the case of such loans by the Loan Commissioners is 5 per cent. in respect of loans for periods not exceeding 30 years, and 5¼ per cent. in respect of loans not exceeding 40 years, which is the maximum period allowed under Section 67 of the 1890 Act for repayment of the loans.

THE BUILDING TRADE.

THE DEVELOPMENT OF BUILDING ESTATES.

THE first of a series of special lectures on building problems and materials was delivered at the School of Architecture, Surveying and Building, Northern Polytechnic Institute, last week, by Mr. B. W. Adkin, F.S.I., Vice-Principal, College of Estate Management, entitled "The Development of Building Estates." The chair was taken by Mr. R. L. Roberts, M.A., Member of the Governing Body of the Institute, supported by Mr. Richard Parry, D.Sc., F.S.I., Principal, College of Estate Management, and Mr. Reginald S. Clay, B.A. (Cantab), D.Sc., Principal, Northern Polytechnic Institute.

Mr. Adkin dealt with the subject under two headings: (1) What is a Building Estate? (2) How is a Building Estate Developed? After dealing with the increase in the population and the historic growth of the Administrative County of London, and similarly with Liverpool and Birmingham, the passing of the Public Health Acts, Metropolis Management Act, and Local Government Acts, the Housing of the Working Classes Act, and the Housing and Town-Planning Act, the lecturer touched upon the various periods of activity and depression in residential building, and passed on to the main theme of estate development from the standpoint of a speculating builder having very moderate means but more than a small amount of ambition. He traced the progress of the negotiations and operations step by step from the acquiring of the site, building of the houses, advances from the freeholder, and creation of ground rents, to the ultimate satisfactory issue which showed both the landowner and the builder to have obtained a comfortable profit from the building operations. Plans showing the development of two estates were exhibited, and an explanation of the guiding lines given, though they were both on old-fashioned lines permitting considerably more houses per acre than would be the case in up-to-date schemes.

Several interesting questions were asked by students upon the exigencies which arise consequent upon buildings being commenced but abandoned by the speculating builder.

The chairman, in moving a vote of thanks to the lecturer, made a few remarks upon the subject from the standpoint of a building contractor. Mr. Clay seconded the proposal. Mr. H. J. Axten also spoke in support and referred to the importance of competent architects being employed in the preparation of designs for the buildings in order to prevent the monotonous repetition of houses built to the same design, and deprecated the practice of speculating builders obtaining a plan from unqualified persons engaged at a slender fee, and using it *ad nauseam*. He also quoted instances of exhorbitant charges made by landowners under the old methods of development and instances of the gain in every direction from a modern scheme of town planning.

The next paper will be read at 7 p.m., on October 26th, by Mr. H. R. Cox, of the Associated Portland Cement Manufacturers, on "The Manufacture of Portland Cement."

L.C.C. AND BUILDING COSTS.

AT Tuesday's meeting of the London County Council, Lieut.-Col. Cecil B. Levita (Chairman of the Housing Committee) said since the last meeting of the Council before the recess statements which varied one from the other had been made with regard to the costs of building, and he thought it would be of interest to them and to builders in the County of London to have the facts as to the actual cost of building to-day within the County. The Director-General of Housing had recently said the costs of building at the present time exceeded by some 60 to 70 per cent. the costs of building in 1914. The National Federation of House Builders had replied that, from their point of view, the cost was 125 per cent. above the cost in 1914. The Committee had found that to-day's prices,

Photo: Campbell Gray.

REINFORCED CONCRETE TERRACING DURING CONSTRUCTION.

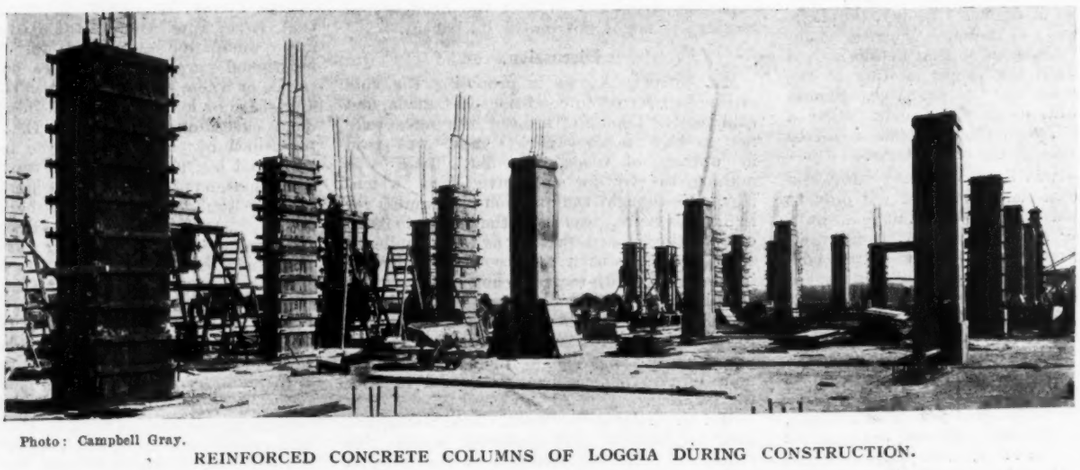


Photo: Campbell Gray.

REINFORCED CONCRETE COLUMNS OF LOGGIA DURING CONSTRUCTION.

The Stadium at the British Empire Exhibition, Wembley.

MESSRS. JOHN W. SIMPSON, PP.R.I.B.A., & MAXWELL AYRTON, F.R.I.B.A., Architects. (*See p.* 577).

based on contracts issued since the Council last met, revealed that the cost was 80 per cent. above the prices in 1914. He could hold out no hope at the present time that the cost of building in London was likely immediately, at any rate, to fall below that figure of 80 per cent. increase. Not less than 75 per cent. of the cost of building, including the cost of the materials used, went in wages. It would, therefore, appear that wages in the building trade had kept pace with the cost of living. They were not likely to see any fall in wages immediately; nobody wished it; everyone in the Council would welcome a very much larger expenditure on building if they got more for their money. Wages agreements had been entered into until March 1, 1923. The President of the National Federation of Building Trade Operatives had said there were 100,000 men in the building trade out of work, that nevertheless one million houses were required, and that it was the duty of the State and the municipalities to go on building independent of costs. In the speaker's opinion that proposition was economically fallacious; no fall in the cost of building by reason of any lowering of wages could be expected before March next; therefore, the only way by which building costs could be reduced was by increasing the productivity per man. Employment, in the building trade especially, was determined by the demand, the demand was determined by the price, and the price was in large degree dependent on the productivity per man. It followed that where the productivity per head had been cut down (as it had in London, although it was getting better to-day), that largely affected the price, which in turn affected the demand, and ultimately the amount of employment in the building trade. This feature was one of which the Council ought to take note, because unless they could attain a higher standard than was reached to-day, he did not see how they could find the money to do the amount of building required. In comparing costs, he stated that the successful tender for the erection of the first block of dwellings on the Brady-street area worked out at £165 per room, and for Huberd House (Tabard-street area) £170, as against a cost of £95 per room in July, 1914.

LECKHAMPTON QUARRIES.

On Wednesday last week Dr. Macnamara, Minister of Labour, cut the first sod of a new railway line to connect up the quarries at Leckhampton with the Great Western Main Line at Charlton Kings. The Leckhampton Quarries Co., Ltd., is one of the oldest working concerns in England, the quarries, it is believed, having been worked from Saxon times. The material is limestone and was probably used for the building of Gloucester Cathedral in the twelfth century, the Shire Hall in 1814, and other principal buildings in the district. It is the intention of the company to build a railway line about one mile in length and to construct up-to-date lime kilns with the necessary power installed for the development of a large industrial enterprise. This will give immediate work to many of the unemployed, and during the course of operations the number will be increased to about 400. As the Board of Directors is mainly composed of ex-officers, its policy is to employ, as far as possible, ex-service men; schemes have been submitted for absorbing them into the trade, and as the anticipated extensions are completed to take on a great many of the men permanently.

Dr. Macnamara, speaking at a luncheon last week, said the scheme which had been inaugurated would give immediate useful and productive work to a number of the unemployed, of whom there were over 1,000 in Cheltenham. So far as this country was concerned the peak was reached in June last year, when two million persons were registered as wholly unemployed, and nearly one million as partially unemployed. At the beginning of this year there were 1,800,000 wholly unemployed and 286,000 on short time. To-day 1,329,000 were out of employment and 53,000 on short time. This would probably worsen owing to seasonal depression, but it would improve in a marked degree, although complete recovery would be slow.

The luncheon was presided over by Admiral Sir Charles Coke, chairman of the company.

NEW BUILDINGS IN LONDON.

West Hampstead.—We understand that a noted old house, Cholmley Lodge, is to be pulled down, and around its demesne is to be built a four-sided block of up-to-date self-contained flats. The whole will be an island cut off by boundary roadways, says the *Evening News*. In all 190 flats will surround this pleasance. Some of the flats will be finished at the end of this year and others during next year. The first blocks will contain five rooms and a bathroom and others will be larger.

Harlesden.—The work at the Wesleyan Church, High-street, consists of cleaning and repointing brickwork, cleaning and restoring stonework, necessary repairs to roof and external painting. The electric light has been installed by Messrs. W. H. Fox & Sons, of Kensington. There are no other sub-contracts. Mr. George Beaves is acting as honorary architect.

St. James'-square.—Mr. Henry J. Greenham, Rosebank Wharf, Fulham, S.W. 6, is demolishing a big roof at the Junior Carlton Club. Messrs. Trollope & Colls, Ltd., 77, Grosvenor-road, S.W., are doing the reconstruction work.

Maiden-lane.—Messrs. Dove Bros., Ltd., Islington, N. 1, are altering 21, Maiden-lane, for the Corps of Commissionaires. The front portion consists of a shop on the ground floor with flats over, the back portion with separate entrance being a club room and rehearsal theatre. The work to the club room, &c., is chiefly alterations and decorations, but the flats are being practically rebuilt. The floor over the shop is of steel joists and concrete; also the new flat as roof; the others being steel joists and deal floors, &c. The brickwork in stocks and the front facings is in Lawrence's 2 in. sand-faced bricks with similar dressings to openings of lighter colour, the joints being rubbed up. The partitions are of concrete slabs and the strings and cills to front elevation in Portland stone. The steps and landings are by Messrs. Stuart's Granolithic Co., and the steelwork by Messrs. Young & Co.

Aldwych.—Messrs. Holttum & Green, Ltd., Finsbury Works, Durham-road, Holloway, N. 7, are carrying out alterations at the Westminster Restaurant, General Buildings, Aldwych. The sub-contractors are: Messrs. Hendersons, 34, Surrey-street, W.C. 2; Messrs. Battiscombe & Harris, 47, New Cavendish-street, W. 1; Messrs. Fenning & Co., Ltd., Palace Wharf, Rainville-road, W. 6; and the Art Pavements and Decorations, Ltd., Camden Town, N.W. 1.

Verney-road.—Messrs. Percy C. Webb, Ltd., have now completed their removal to their large new waterside premises at the Marble Wharf, Verney-road, Old Kent-road, on the Surrey Canal. The equipment of the works is up to date, and the office accommodation includes a large general office, &c., and there is a rest room for the staff and a consulting room for the use of clients.

Queen Victoria-street.—Mr. Charles R. Price, builder, of 87, Bishopsgate, E.C. 2, has secured the contract for extensive alterations of the branch of Lloyds Bank, 35, Queen Victoria-street.

Stoke Newington.—The Lester Shoe Warehouse, 157, High-street, Stoke Newington, has just been remodelled. A new metal shop front of original design has been installed and the whole character of the shop has been transformed. The whole of the work, including the metal display fittings in the shop window, has been carried out by Messrs. Cullens, Ltd., Shopfitters, of 43, Berners-street, W.1.

Regent-street and Jermyn-street.—Messrs. F. Keen & Sons, contractors, 469, Old Kent-road, S.E., are carrying out the demolition of the premises Nos. 17–23, Jermyn-street, and Nos. 117–119A, Regent-street. We are informed that a Crown lease of this site has been acquired by a syndicate headed by Mr. Benjamin Hicks, of Apollo Films, Ltd., and Mr. De Wyckoff, an American, and it is proposed to erect a theatre which can either be used for the production of drama or for cinema performances. The architects have not yet been definitely appointed and no contracts have been placed.

Plaistow.—A Nurses' Home in connection with St. Mary's Hospital for Women and Children, Plaistow, E., is now in course of erection on the south side of Florence-road, adjoining the Hospital. The new building has a frontage of 114 ft. to Florence-road by about 36 ft. deep, with projecting bay at each end up to the first floor level, and consists of a semi-basement with four floors over with accommodation for 47 sisters and nurses, each having a separate bedroom. The bedrooms are situate on the three upper floors with bathrooms, lavatories and housemaid's room and store cupboards on each floor. A special room is provided on the first floor for sick nurses. A suite of rooms consisting of sitting-room, bedroom and bathroom is provided for the matron on the ground floor, with the home sister's sitting-room adjoining. The remainder of the ground floor is given up to the nurses' dining-room, pantry, visitors' room, nurses' workroom, linen room, cloak room and lavatories. There are separate sitting-rooms for the nurses and sisters and a writing room. The three latter rooms will be separated by folding partitions, which, when open, will form a large room for social gatherings, meetings, &c. The maids' dining-room and sitting-room are in the semi-basement together with the kitchen, scullery, larder, pantry and china store, box room, boiler house and coal store. A central staircase and lift will serve all floors and there will be an emergency exit at each end of the central corridor. It is the intention to form a covered gangway on each floor between the Home and the Hospital adjoining. The building is being constructed of fire-resisting materials throughout and covered with a flat roof for use as a roof garden, the main staircase being taken up to give access to same. The building has been designed by and is being carried out under the superintendence of Messrs. George Lansdown & Brown, FF.R.I.B.A., architects and surveyors, of No. 9, Regent-street, Waterloo-place, S.W., and when finished will provide suitable and adequate accommodation which is so urgently needed for the nurses engaged in the hospital. The building is being erected by Messrs. Patman & Fotheringham, Ltd., Park-street, Islington, the sub-contractors being as follows:—Heating and hot water supplies, Messrs. Young, Austen & Young, 8, Buckingham-street, Strand, W.C.; lifts, Messrs. Hammond & Champness, Alfreton-street, S.E.; sanitary appliances, Messrs. Tylors, Ltd., Belle Isle, York-road, N.; concrete floors, Messrs. Horace Cullum & Co., 50, Britannia-street, W.C.1; escape stairs, Lion Foundry Co., Kirkintilloch, Glasgow; lift enclosure and wrot iron railings, Mr. Frank Burkitt, 10, Lant-street, Borough, S.E.

Walthamstow.—All engineering craft demarcation questions having been satisfactorily settled, the extension of the Walthamstow Public Baths, at a cost of about £13,000, is to be proceeded with forthwith. Mr. J. William Dunford, of Walthamstow, is the architect, and Mr. Thos. Shillitoe, of Seven Sisters-road, N.7, is the contractor.

Oxford-street.—In connection with the proposed new cinema, in Oxford-street, we understand that at the moment this contract is being held up, and no work is being done.

Mount-street.—With reference to Messrs. Barclays new branch at 119, Mount-street, W., the architect who acted on behalf of the bank is Mr. E. Burgess, of 6, South-square, Gray's Inn, W.C.1, and Messrs. C. F. Kearley, Ltd., of 4, Great Marlborough-street, W., are the contractors.

Peckham.—Messrs. H. Holdron, Ltd., proprietors of the large store in Rye-lane, Peckham, have acquired some shop premises adjacent to their existing buildings, and these are to be converted to conform to the firm's shops adjoining.

GLASGOW HOUSING EXHIBITION.

IN our issue of October 6 we gave a review of some of the exhibits at the Housing and Health Exhibition, held under the auspices of the Glasgow Corporation, which closed last week. In addition to the stands noticed in that issue, several other firms showed products of special interest to the building trade.

Messrs. Cuirass Products, Ltd. (69, Victoria-street, Westminster, S.W. 1), showed a roof waterproofed with their liquid proofing and putty compound, and subjected to continuous downpour of water. The holes in the corrugated iron had been repaired with ordinary brown paper and no leaks were observable. A feature of this proofing is that it is applied cold with a brush, and no heating is required. Damp walls were shown coated with "Cuirass" waterproofing, and afterwards papered and distempered. The uses of "Cuirass" enamel and samples of wood treated with "Cuirass" coloured wood preservatives and stains were shown.

Messrs. James Meighan & Son (Glasgow) showed a good selection of their goods. The firm's main exhibit consisted of blinds of various kinds, casement and long curtains in new fadeless materials, and cushions and decorative furnishings. A special exhibit of an electric lighting, heating and cooking apparatus, for which the firm undertakes complete installations in town or country, attracted much interest.

Mr. Willis Heeley (196, St. Vincent-street, Glasgow) showed a room, the interior walls and ceilings of which were lined with "Fiberlic" root fibre board instead of lath and plaster, and treated with a tapestry paper on walls. The exterior was treated with washable distemper. Steel windows with various styles of opening were shown with stained and leaded glass panes.

Super-Cinema at Ilford.

On a triangular piece of land facing Ilford Station, a new super-cinema, which was opened to the public on Saturday last, has been erected by Messrs. Sheffield Bros., Ltd., contractors, Dalston. The building has been designed by Mr. W. E. Trent, architect, to produce the effect of a Greek theatre with an open roof. A series of swing doors gives access to the foyer—which, owing to its exceptional size, should obviate the forming of queues outside the theatre—and lounge, at the end of which is the staircase leading to the café lounge on the first floor, and thence to the balcony of the theatre. Behind the screen wall are the staff rooms, with heating chambers and boiler house in the basement, while the operating chamber and the re-winding rooms are at the back of the balcony, and the motor generator and battery rooms are in the basement under the foyer. Over the café lounge, and approached by staircases from each end, a roof garden is planned. Excluding the main entrance, there are ten separate exits leading direct to public thoroughfares, which would enable the building to be emptied in two minutes in an emergency. The interior of the theatre has been treated in a classic manner, being decorated with a frieze 185 ft. long, each panel depicting incidents in the Greek myths, painted by Mr. Val Prince, of Birmingham. In the lounge and café the decorations are modern. In addition to the ceiling lights, which are an integral part of the design instead of being merely suspended, light is obtained from the bull's-eye windows in the frieze and from vases round the balcony front. The heating and ventilation are on the semi-plenum system. A three-manual organ has been installed by Messrs. Henry Speechly & Sons.

Proposed Institution of Structural Engineers.

With regard to the report of the meeting of the members of the Concrete Institute in our issue for October 6, at which it was decided to change the name to the Institution of Structural Engineers, it was made to appear that the Associate Members' subscription is to be increased to £3 3s., whereas in fact it is to be increased from £1 11s. 6d. to £2 2s.

RATES OF WAGES IN THE BUILDING TRADE.

The following are the rates of wages in the building trade in England and Wales. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons	Bricklayers.	Carpenters, Joiners.	Plasterers	Slaters.	Plumbers.	Painters.	Masons' Bricklayers' Labourers.	Plasterers
Aberdare	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Accrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Altrincham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Ashton-under-Lyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Barnsley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Barrow-in-Furness	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Barry	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Bath	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½	
Bedford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Birkenhead	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/5½	
Birmingham	1/8	1/8	1/8	1/8	1/8	1/9	1/8	1/3	
Bishop Auckland	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Blackburn	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Blackpool	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Bolton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Bournemouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Bradford	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Bridgwater	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½	
Brighton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Bristol	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Burnley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Burton-on-Trent	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2	
Bury	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Cambridge	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Cardiff	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Chatham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Chelmsford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Cheltenham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½	
Chester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Chesterfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Colchester	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Coventry	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Crewe	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2	
Darlington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Derby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Doncaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Dudley	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2	
Durham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
E. Glam. (Mon. Vall.)	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Eastbourne	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Exeter	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½	
Folkestone	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Gloucester	1/5	1/5	1/5	1/5	1/5	1/5	1/4	1/0½	
Grantham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2	
Grays	1/8	1/8	1/8	1/8	1/8	1/8½	1/7	1/3	
Grimsby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Great Yarmouth	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Guildford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Halifax	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Harrogate	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Hartlepools	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Hastings	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Hereford	1/5	1/5	1/5	1/5	1/5	1/5	1/4	1/0½	
Huddersfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Hull	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Ipswich	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Lancaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Leamington Spa	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2	
Leeds	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Leicester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Lichfield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2	
Lincoln	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Liverpool	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/5½	
Llanelly	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
London	1/8	1/8	1/8	1/8	1/8	1/8½	1/7	1/3	
Loughborough	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Luton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Maidstone	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Manchester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Mansfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Merthyr Tydfil	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Middlesbrough	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Newcastle-on-Tyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Newport, Mon.	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Northampton	1/6½	1/6½	1/6½	1/6½	1/0½	1/6½	1/6½	1/2	
Norwich	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Nottingham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Oakham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½	
Oldham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Oxford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Plymouth	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½	
Pontypridd	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Portsmouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Preston	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Reading	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Rochdale	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Rochester	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0	
Rugby	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2	
St. Albans	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
St. Helen's	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Scarborough	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2	
Sheffield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Shrewsbury	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2	
Southampton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Southend-on-Sea	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Southport	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
South Shields	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Stockport	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Stockton-on-Tees	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Stoke-on-Trent	1/8	1/8	1/8	1/8	1/8	1/9	1/0	1/3	
Stroud	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4	1/0½	
Sunderland	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Swansea	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Swindon	1/5	1/5	1/5	1/5	1/5	1/5	1/4	1/0½	
Taunton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Torquay	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Tunbridge Wells	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Wakefield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Walsall	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2	
Warrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
West Bromwich	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Wigan	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Windsor	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½	
Wolverhampton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Worcester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2	
York	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2	

(For rates of wages in the Building Trade in Scotland, see page 599.)

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

OCTOBER 21.—**Ebbw Vale.**—HOUSES.—Erection of 28 houses on the Gautre site, for the U.D.C. Mr. P. I. Davies, Housing Architect, Council Offices, Ebbw Vale. Deposit £5.

OCTOBER 21.—**Penarth and Cardiff.**—REPAIRS, &c.—For (*a*) repairs and renovations, &c., at 3, Paget-place, Penarth, and (*b*) repairs, renovations, &c. at 22, Woodville-road, Cardiff, for the Board of Guardians. The Clerk to the Guardians, Union Offices, 11, Park-place, Cardiff.

OCTOBER 21.—**Sheffield.**—PAINTING.—For the outside painting of the Union Hospital, Firvale, for the Board of Guardians. Mr. Albert E. Booker, Clerk, Union Offices, Westbar, Sheffield.

OCTOBER 21.—**Talybont.**—MEMORIAL.—Erection of Memorial Hall at Talybont. Mr. R. T. Griffiths, Secretary, The Mill, Talybont.

OCTOBER 23.—**Carnforth.**—CONVENIENCES.—Erecton of public conveniences on the Market Ground, for the U.D.C. Mr. N. D. Preston, Surveyor, Carnforth. Deposit, £1 1s.

OCTOBER 23.—**Glasgow.**—HOUSES.—Erection of houses at Coplawhill, for the T.C. Mr. J. Lindsay, Town Clerk, City Chambers, Glasgow.

OCTOBER 23.—**Wakefield.**—HOUSE.—Erection of a detached residence with garage, in Seckar-lane, Woolley, near Wakefield. Messrs. Crawshaw & Wilkinson, architects, 13, Regent-street, Barnsley.

OCTOBER 23.—**Woolley, near Wakefield.**—RESIDENCE.—For the various works required to be done in the erection of a detached residence with garage in Seckerlane, Woolley, near Wakefield. Messrs. Crawshaw & Wilkinson, 13, Regent-street, Barnsley.

OCTOBER 24.—**Leeds.**—GREENHOUSES.—Rebuilding of superstructures of greenhouses at Cross Flatt's-park and Woodhouse Moor, for the T.C. Mr. W. T. Lancashire, City Engineer, Municipal Buildings, Leeds.

✱OCTOBER 24.—**London, W.**—DISINFECTING STATION.—Erection of a disinfecting and disinfesting station at Mardale Depot, Scott's-road, Shepherd's Bush, for the Hammersmith B.C. Mr. R. Hampton Clucas, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Hammersmith, W. 6.

OCTOBER 24.—**Longhorsley.**—WALL.—Erection of about 175 lin. yds. of rubble walling. Messrs. R. J. Aynsley & Son, Land Agents, 26, Northumberland-street, Newcastle-on-Tyne.

OCTOBER 24.—**Manchester.**—STAIRCASE.—Construction of a staircase at the Lesser Free Trade Hall, for the T.C. City Architect, Town Hall, Manchester. Deposit, 10s.

OCTOBER 24.—**Marley Hill.**—ALTERATIONS.—Adaptation of Church Hall at Sunniside, for temporary school accommodation, for the Durham C.C. Mr. F. Willey, F.R.I.B.A., 34, Old Elvet, Durham.

OCTOBER 25.—**Llandaff and Dinas Powis.**—BRIDGE REPAIR AND PAINTING.—For reconstructing in reinforced concrete the floor, and for painting the ironwork of the bridge at Pontalybont, near Pendoylan Plans, for the R.D.C. Mr. W. Farrow, Engineer and Surveyor to the Council, 20, Park-place, Cardiff.

OCTOBER 25.—**Llanelly.**—PAINTING.—For painting the Town Hall, for the B.C. Mr. W. H. Spowart, Town Clerk, Llanelly.

OCTOBER 25.—**Pengam.**—BOWLING GREENS, TENNIS COURTS, FENCING, &C.—The Committee of the Cefn-Forest, Pengam, Library, invite tenders for construction of bowling greens and tennis courts and erection of 368 yards of unclimbable fencing at Cefn-Forest. Mr. John Jones, 80, Bedwellty-road, Pengam (Mon).

OCTOBER 25.—**Stonehouse.**—CHIMNEY.—Erection of chimney stalk, 60 ft. high, for the Stonehouse Gas Co. Mr. W. Calderhead, Manager, Stonehouse.

OCTOBER 26.—**Argoed.**—VARIOUS WORKS.—Erection of new latrines, forming pathways, &c., at the Infants' Department of the Argoed County School, for the Monmouthshire E.C. Mr. John Bain, F.R.I.B.A., County Hall, Newport.

OCTOBER 26.—**London, E.**—ALTERATIONS, &C.—Altering and renovating the Relief Offices at Raine-street, E.1, for the Guardians of the Parish of St. George-in-the-East. Mr. R. M. Lochner, Clerk, Guardians' Office.

OCTOBER 26.—**London, E.**—RENOVATIONS, &C.—Renovations, &c., at the Dispensary and Relief Offices at Cannon Street-road, for the Guardians of the Parish of St. George-in-the-East. Mr. R. M. Lochner, Clerk, Guardians' Office, Raine-street, Old Gravel-lane, E.1.

OCTOBER 26.—**Newport (Mon).**—REPAIRS AND ALTERATIONS, &C.—The Guardians invite tenders for (*a*) Supply and installation of new heating plant at Nurses' Home, Springfield, Woolaston House, Newport; (*b*) Repairs to gardener's house at Caerleon Infirmary; (*c*) Adaptation of hospital building at Caerleon as a Boys' Home. The Workhouse Master, Woolaston House, Stow-hill, Newport.

OCTOBER 26.—**St. George's-in-the-East.**—ALTERATIONS.—For alterations at the Relief Offices of the Board of Guardians. Mr. R. M. Lochner, Clerk, Raine-street, Old Gravel-lane, E.

OCTOBER 26.—**St. Pancras.**—CONVERSION.—For converting two wards at 4, King's-road, N.W.1, into a Home for Hospital Nurses, for the Board of Guardians. Mr. B. Chapman, Clerk, Town Hall, Pancras-road, N.W.1. Deposit £5.

OCTOBER 27.—**Deptford.**—EXTENSION.—For the construction of an engine house, chimney shaft, boiler setting, drainage, alterations to existing buildings &c., at Deptford Pumping Station, Brookmill-road, for the Met. Water Board. Mr. Henry E. Stilgoe, M.Inst.C.E., Chief Engineer, New River Head, 173, Rosebery-avenue, E.C. 1. Deposit £5.

OCTOBER 27.—**Dingwall.**—HOUSES.—Erection of eight houses in four blocks, for the T.C. Mr. D. Matheson, architect, Dingwall.

OCTOBER 27.—**Leyton.**—EXTENSION.—For construction of engine house, addition to and alteration to existing buildings, boiler setting, &c., at Lea Bridge Pumping Station, Lea Bridge-road, for the Met. Water Board. Mr. Henry E. Stilgoe, M.Inst.C.E., Chief Engineer, New River Head, 173, Rosebery-avenue, E.C. 1. Deposit £5.

OCTOBER 27.—**London, N.**—POST OFFICE ENLARGEMENT.—Enlargement of the Branch Post Office, King's Cross, N., for Commissioners of H.M.O.W. Drawings, &c., from Superintendent of Works, H.M.O.W., Cornwallis-road, Holloway, N. Forms of Tender from the Contracts Branch, H.M.O.W., King Charles-street, S.W.1. Deposit £1 1s.

OCTOBER 27.—**Newtonmore.**—BUILDING.—Erection of building at the Hotel, Newtonmore, for Mr. Geo. Main. Mr. Alex. Cattanach, architect, Kingussie.

OCTOBER 28.—**Eastleigh.**—POLICE STATION, &C.—Contract No. 1: Erection of a police-station and four cottages. Deposit £5 5s. Contract No. 2: For the construction of ferro-concrete floors, stairs, and flat roofs to the police station (Hennebique system). Deposit £2 2s. Deposits must be made by cheque to Hants C.C. and crossed "Lloyds Bank, Ltd. (Capital & Counties Bank Branch), Winchester." Mr. A. L. Roberts, County Architect, The Castle, Winchester.

OCTOBER 28.—**Ebbw Vale.**—ERECTION OF SUB-STATION.—For the erection of a sub-station in connection with the electricity department, for the U.D.C. Mr. P. T. Davies, Engineer and Surveyor, Council Offices, Ebbw Vale. Deposit £2 2s.

OCTOBER 28.—**Irvine.**—HOUSES.—Erection of 18 additional houses, for the T.C. Messrs. David Gillies and A. R. Wilson, Joint Town Clerks, Council Chambers, Irvine. Deposit £1 1s.

OCTOBER 28.—**Loughor.**—RESCUE STATION.—Erection of a Central Mines Rescue Station at Loughor, for the Swansea District Collieries Rescue Association. Mr. D. I. Evans, Secretary, 62, Wind-street, Swansea. Deposit £2 2s.

OCTOBER 28.—**Prescot.**—SCHOOL.—Erection of a new secondary school of semi-permanent construction for 260 boys, at Prescot, near Liverpool, for the Lancashire E.C. Mr. Henry Littler, County Architect, 16, Ribblesdale-place, Preston. Deposit £2.

OCTOBER 28.—**Waterloo-with-Seaforth.**—PAINTING.—Painting of the external woodwork and ironwork of the Town Hall and outbuildings, for the U.D.C. Surveyor, Town Hall, Waterloo.

NOVEMBER 1.—**Chadwell Heath.**—EXTENSIONS.—For extensions to the Whalebone Council School, for the Essex County Council. The County Architect, Springfield Old Court, Chelmsford. Deposit £1 1s.

NOVEMBER 1.—**London, W.**—ALTERATIONS.—Conversion of certain buildings at 5, Woodfield-road, W.2, into residences for the staff, for the Paddington B.G. Mr. H. Percy Adams, F.R.I.B.A., architect, 9, Knightsbridge, S.W.1. Mr. P. Biddulph Hancock, Clerk to the Guardians, 313–319, Harrow-road, W.9. Deposit £3 3s.

✱NOVEMBER 1.—**London, W. Kensington.**—FLOORING.—For laying of maple wood block flooring at the Savings Bank, for the Commissioners of H.M. Works.—Contracts Branch, H.M. Office of Works, King Charles-street, S.W. 1.

NOVEMBER 1.—**Maidstone.**—DINING HALL.—Erection of a dining hall (constructed in timber) at the Grammar School for Girls, Sittingbourne-road, Maidstone, for the Governors. Mr. W. N. Robinson, Architect, Sessions House, Maidstone. Deposit £1.

NOVEMBER 1.—**Southampton.**—ALTERATIONS.—Conversion of The Mount, Bishopstoke, into a Tuberculosis Sanatorium, for the Southampton C.C. Mr. A. L. Roberts, County Architect The Castle, Winchester. Deposit £1 1s.

✱NOVEMBER 1.—**Turnham Green.**—CONVENIENCE.—For the erection of a women's convenience on Turnham Green Common, for Chiswick U.D.C. Mr. Edward Willis, M.I.C.E., Engineer and Surveyor, Town Hall, Chiswick.

NOVEMBER 2.—**Lanchester.**—HOUSES.—Erection of 14 Class "A" two-story houses at Lanchester, for the R.D.C. Mr Thos. E. Taylor, L.R.I.B.A., Union Offices, Lanchester.

✱NOVEMBER 3.—**Guildford, Brighton, Chichester.**—WORKS AND REPAIRS.—War Department Contracts for works and repairs. Commanding Royal Engineer, Royal Engineer Office, New-road, Woolwich, S.E. 18.

✱NOVEMBER 4.—**London, W.**—BUILDING, &C.—Repairs and reinforcement to the stone bridge connecting the east and west blocks abutting Marylebone-road, at the St. Marylebone Workhouse, Northumberland-street, W. 1, for the St. Marylebone Board of Guardians, Messrs. Constantine & Vernon, architects, 82, Mortimer-street, W. 1. Deposit £1.

✱NOVEMBER 6.—**East Ham, E.6.**—PAINTING.—For painting works at the main drainage works northern outfall, near Beckton, for the L.C.C. Chief Engineer, of the Council, Old County Hall, Spring Gardens, S.W.1. Deposit £1.

✱NOVEMBER 6.—**West Ham.**—PAINTING, &C.—For painting works and construction of a light steel roof over screening chamber at the Abbey Mills pumping station, for the L.C.C. Chief Engineer of the Council, Old County Hall, Spring Gardens, S.W.1. Deposit £1.

NOVEMBER 7.—**Chingford.**—COTTAGE.—Cottage at their Refuse Disposal Works, for the U.D.C. Mr. Leonard C. Bowen, Council Offices, Chingford, E.4.

✱NOVEMBER 7.—**Wrexham.**—W.D. CONTRACT FOR REPAIRS AND MATERIALS.—Artificer's Works Contract from December 1, 1922, for Wrexham Division. Lt.-Col. R. S. McClintock, R.E., Commanding Royal Engineers, Welsh Area, R.E. Office, 3, Belmont, Shrewsbury.

✱NOVEMBER 8.—**Darwen, Lancs.**—POST OFFICE.—Erection of a new P.O. for the Commissioners of H.M. Works. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. 1. Deposit, £1 1s.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Bricklayers' Labourers.	Plasterers'
Aberdeen	1/7	1/10½	1/7	1/7½	1/8	1/9	1/7	1/2 to 1/4	
Airdrie	1/8	1/8	1/8	1/8	1/8	1/8	—	1/3	
Alexandria	1/8	1/8	1/8	1/8	1/8	1/8	—	1/2	
Arbroath	1/7	1/7	1/7	1/7	1/7	1/7	1/8	1/1	
Ayr	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Bathgate	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/2	
Blairgowrie	1/7	—	1/7	1/7	1/7	1/7	1/7	—	
Bo'ness	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/2	
Coatbridge	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Dumbarton	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Dumfries	1/6	1/6	1/6	1/6	1/6	1/8	1/8	1/2	1/2½ 1/3½
Dundee	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Dunfermline	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/2	
Edinburgh	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Falkirk	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Fort William	1/6	1/6	1/6	1/6	1/6	1/6	—	1/1½	
Galashiels	1/6	1/6	1/6	1/6	1/6	1/6	1/8	1/1½	
Glasgow	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Greenock	1/8	1/3	1/8	1/8	1/8	1/8	1/9	1/1 to 1/3	
Hamilton	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Hawick	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Helensburgh	1/8	1/8	1/8	1/8	1/8	1,8	1/9	1/3	
Inverness	1/6½	—	1/6	1/7	1/6½	1/7	1/6	1/0 to 1/3	
Kilmarnock	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Kirkcaldy	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/2	
Kirkwall	1/5	1/5	1/4	1/7	1/5	1/5	1/4	1/2	
Lanark	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Leith	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/2	
Motherwell	1/8	1/8	1/8	1/8	1/8	1/8	—	1/3	
Perth	1/8	1/8	1/8	1/8	1/8	1/8	1/7	1/2	
Stirling	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Stirlingshire (Eastern District)	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Wishaw	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 598.

✱NOVEMBER 8.—**Hendon, N.W. 9.**—ALTERATIONS.—For alterations to Nurses' Home, to provide additional bedrooms, &c., at Colindale Hospital, Colindale-avenue, for the Metropolitan Asylums Board. Office of the Board, Embankment, E.C. 4. Deposit, £1.

NOVEMBER 13. — **Panteg.** — SWIMMING BATH. — Construction of open-air swimming bath at Griffithstown, for the U.D.C. Surveyor, Pontymoel.

✱NOVEMBER 14.—**Warsop, Notts.**—WORKMEN'S HOUSES.—Erection of 100 houses, near Welbeck Colliery, for Messrs. New Hucknall Colliery Co., Ltd. Head Office, nr. Mansfield. Deposit, £5 5s.

NOVEMBER 20.—**Poplar.**—ENGINE HOUSE, &C.—For the construction of an engine house in brick and concrete, with slate roof and foundations for engines, pumps, and auxiliary machinery, also construction of supply, suction and delivery culverts, &c., for the L.C.C. Chief Engineer of the Council, Old County Hall, Spring Gardens, S.W.1. Deposit £5.

NOVEMBER 30.—**Barcelona.**— EXHIBITION BUILDINGS. —Construction of the Grand Palace of Nations in connection with the Barcelona Exhibition. Oficinas de la Exposicion, Barcelona. Tenders in French or Spanish to be delivered by hand. Copy of specification at Department of Overseas Trade, 35, Old Queen-street, S.W.

NO DATE.—**Ben Rhydding.**—VILLAS.—Erection of a pair of semi-detached villas at Ben Rhydding. Mr. A. G. Adkin, architect, The Chambers, Ilkley.

NO DATE.—**Brynmawr.**—DRILL HALL.—For erection of drill hall, for Brecknock Territorial Army, at Brynmawr. Messrs. Habershon & Fawckner, F.R.I.B.A., 41, High-street, Newport, Mon. Deposit £3 3s.

NO DATE.—**Dunbarton.**—HOUSES.—Erection of nine blocks of twenty-four houses at Old Kilpatrick, for the Dunbarton C.C. Mr. Joseph Weekes, architect, 88 College-street Dunbarton. Deposit £1 1s.

✱NO DATE.—**Eastbourne.**—ALTERATIONS.—For proposed alterations and additions to premises, No. 53F, Terminus-road, for Messrs. Timothy White & Co., Ltd., 30, Chandos-street, Portsmouth.

NO DATE.— **Gilfach Goch.**— REPAIRS, &C.—For carrying out repairs and renovations, for the Trustees, to the Libanus C.M. Church, Gilfach Goch (Glam). Mr. Owen Williams, Secretary, Arosfa, High-street, Gilfach Goch.

NO DATE.—**Seaton Delaval.**—ALTERATIONS.—For alterations and additions to property situated at Seaton terrace. Seaton Delaval Co-operative Society.

NO DATE.—**St. Teath.**—HALL.—Erection of church hall. Rev. Claude Kingdon, St. Teath.

NO DATE. — **Windermere.** — HOUSE.—Erection of house in Birthwaite-road, Windermere. Mr. A. E. Turnell, 82, Riverdale-road, Sheffield.

NO DATE.—**Yelverton.**—BUNGALOW.—Erection of a bungalow at Meavy Yelverton. Mr. T. H. Harris, Trelawny-road, Tavistock.

FURNITURE, MATERIALS, etc.

OCTOBER 23.—**Rhondda.**— OILSKINS.—For supply of about 100 suits of oilskins, for U.D.C. Mr. E. Taylor, Engineer and Surveyor, Council Offices, Pentre, Rhondda.

OCTOBER 24.—**Leeds.**—PAINTS, &C.—Supply to the Board of Guardians of paints and oils. Mr. James H. Ford, Clerk, Poor Law Offices, South-parade, Leeds.

OCTOBER 24.—**London.**—RAILWAY MATERIALS.—Supply to the Great Indian Peninsula Railway Co. of (1) Electric incandescent lamps; (2) paints, dry-salteries, &c.; (3) galvanised corrugated sheets, &c.; (4) axle-boxes for carriages and wagons; (5) acid open hearth steel boiler plates; (6) white cotton tape; (7) spare parts of carriages and wagons (side and end doors); (8) white lead; (9) screw jacks, &c.; (10) linoleum; (11) ropes, twines, &c.; (12) plate glass, &c.; (13) spring steel; (14) canvasses, &c.; (15) copper plates, rods and ingots; (16) rolled steel disc wheels and axles for carriages and wagons. Mr. R. H. Walpole, Secretary, 48, Copthall-avenue, E.C. 2. Charge £1 for 2 & 15; 10s. for 3, 7, 8, 10, 12, 14 & 16; 7s. 6d. for 6; 5s. for 1, 4, 5, 9 & 11.

OCTOBER 25.—**Margate.**—ROAD MATERIALS.—Supply of granite and pit flints. Borough Surveyor, 15, Grosvenor-place, Margate.

OCTOBER 26.—**London.**—MATERIALS.—Supply to the Metropolitan Asylums Board of boots, brooms and brushes, painters' brushes, &c. Office of the Board, Embankment, E.C. 4.

OCTOBER 30.—**Merthyr Tydfil.**—HARDWARE.—The Ladies' Committee of the Merthyr General Hospital invites tenders for supply of hardware. Mrs. Johanna Edwards, Secretary, General Hospital, Merthyr Tydfil.

OCTOBER 31.—**London.**— POLES.—Supply of Swedish, Norwegian, Finnish or Baltic red fir and home-grown larch or Scots fir telegraph poles, to be felled during the winter of 1922–23. Controller, Post Office Stores Department, 17–19, Bedford-street, W.C.2.

NOVEMBER 15.—**Egypt.**—STORES.—Supply of stores to the Egyptian Postal Administration at Alexandria, including hardware, paints, &c. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

✱NOVEMBER 17.— **Derby.**—SCHOOL FURNITURE.—Supply of school furniture to the Derbyshire E.C. Mr. Geo. H. Widdows, F.R.I.B.A., Architect, County Offices, St. Mary's Gate, Derby.

JANUARY 31, 1923.—**Siam.**— RAILWAY STORES.—Supply to the Department of State Railways, Siam of railway store materials. Messrs. C. P. Sandberg, 40, Grosvenor-gardens, S.W.1. Charge, £2 12s.

ENGINEERING, IRON AND STEEL.

OCTOBER 21.—**Birmingham.**—DESTRUCTOR.—Supply and erection of a new destructor unit at the Montague-street Destructor Works, for the T.C. Mr. James Jackson, Superintendent, Salvage Department, Council House, Birmingham. Deposit £1 1s.

OCTOBER 23.—**Atherstone.** — RESERVOIRS. — Construction of two service tanks having capacities of 75,000 gallons and 63,000 respectively, in solid concrete, for the R.D.C. Mr. H. J. Coleby, Surveyor, 102, Long-street, Atherstone. Deposit £1 1s.

OCTOBER 23.—**Dublin.**— STEELWORK.—Supply of steelwork for underbridge, for the Midland Great Western Railway of Ireland Co. Mr. Percy A. Hay, Secretary, Broadstone Terminus, Dublin. Deposit £1.

OCTOBER 23.—**Edinburgh.**—HEATING.—For installation of hot water heating system in offices at Dewar place electricity station. Mr. G. A. Williamson, City Architect, Edinburgh.

OCTOBER 23.—**Romford.**—ELECTRICAL INSTALLATION.—Electric light installation at Hospital, for the Board of Guardians. Mr. R. H. Mason, Clerk, Union Offices, The Institution, Romford.

OCTOBER 25.—**Armley.**— RAILINGS.—Supplying and fixing of 797 ft. of 6 ft. 6 in. unclimbable iron railing, for the extension to the cemetery, for the Armley Burial Board. Superintendent, Armley Burial Board, Greenhill-road, Armley, Leeds.

OCTOBER 25.—**Barnet.**—HEATING.—For heating the Fire Engine Station, for the U.D.C. Mr. W. B. Chancellor, Surveyor, Municipal Offices, Wood-street, Barnet, Herts.

OCTOBER 25.—**London.**—TOOLS.—Supply to the East Indian Railway Co. of (1) Files; (2) picks, shovels, &c. Mr. G. E. Lillie, Secretary, 76, King William-street, E.C. Charge, £1 1s. each.

OCTOBER 25.—**Manchester.**—ELECTRICAL INSTALLATION.—Electric lighting installations at the Seymour-road, Clayton, and Mansfield-street, Ardwick, Municipal Schools, for the T.C. Education Offices, Deansgate, Manchester. Deposit £1 1s.

OCTOBER 25.—**Manchester.**—RAILINGS.—Providing and fixing wrought-iron railings and gates to the boundary wall at the Armitage-street Municipal School, for the T.C. Education Offices, Deansgate, Manchester. Deposit £1 1s.

OCTOBER 26. — **London.**—MATERIALS.—Supply of brass sheets and rods and ebonite sheets and rods, for the Government of Australia. Supply Officer, Room 101, Australia House, W.C.

OCTOBER 26.—**Wycombe.**—WATERWORKS.—Erection of combined water tower, engine house and store-room at Stokenchurch, for the R.D.C. Messrs. Lucas & Pyke, 39, Victoria-street, Westminster, S.W.1. Deposit £1,

OCTOBER 27.—**London.**—RAILWAY MATERIALS.—Supply to the High Commissioner for India of (1) plates, copper, for locomotive fire-boxes; (2) tubes, boiler, brass; (3) pillar water cranes; (4) tyres, steel, for engines and tenders. Director-General, India Store Department, Belvedere-road, Lambeth, S.E.1.

OCTOBER 28.—**Grantham.**—BRIDGE.—Construction of a ferro-concrete highway bridge over the River Witham at Whalebone-lane, Little Ponton, for the R.D.C. Mr. E. J. Silcock, M.Inst.C.E., 17, Victoria-street, Westminster, S.W. Deposit £5.

OCTOBER 28. — **Newcastle-on-Tyne.** — DREDGING PLANT.—Supply to the Tyne Improvement Commission of dredging plant. Mr. J. McDonald Manson, General Manager, Tyne Improvement Commission Offices, Bewick-street, Newcastle-upon-Tyne. Deposit £5.

OCTOBER 28. — **West Riding.** — BRIDGES. — (1) Strengthening and widening in reinforced concrete of Bentley Mill Bridge (17 ft. span), which carries the Doncaster and Selby main road over Bentley Mill Dyke; (2) Reconstruction in reinforced concrete of Feather Bridge (10 ft. span), which carries the Keighley and Kendal main road over Feather Beck, for the West Riding C.C. West Riding Surveyor, County Hall, Wakefield. Deposit £1 each.

OCTOBER 30.—**Hull.**—BRIDGE.—For a railway bridge in connection with Chanterlands-avenue extension, for the T.C. Mr. F. W. Bricknell, City Engineer, Guildhall, Hull. Deposit £1.

OCTOBER 31.—**London.**—TYRES.—Steel tyres. Director-General, India Store Department, 12, Belvedere-road, S.E.

NOVEMBER 1.—**Failsworth.**—BRIDGE.—Construction of a bridge to carry the Royton-to-Failsworth arterial road over the L. & N.W. Railway at Failsworth, for the U.D.C. Messrs. Charles J. Lomax & Son, civil engineers, 37, Cross-street, Manchester. Deposit £3 3s.

NOVEMBER 1.—**London.**—GIRDER BRIDGES.— Supply to the East Indian Railway Co. of girder bridges. Mr G. E. Lillie, Secretary, 73-76, King William-street, E.C. 4. Charge £1 1s.

NOVEMBER 1. —**Rochdale.** —LIFT.—Supply of electric lift at the hospital of the Board of Guardians. Mr. R. A. Leach, Clerk, Union Offices, Rochdale.

NOVEMBER 3.—**London.**—RAILWAY MATERIAL.— Supply to the High Commissioner for India of (*a*) buffers, (*b*) boiler tubes, (*c*) galvanised corrugated mild steel sheets. Director-General, India Store Department, 12, Belvedere-road, S.E.

NOVEMBER 8.—**London.**— ENGINES.—Supply to the Bombay, Baroda and Central India Railway Co. of locomotive tank engines. Mr. S. G. S. Young, Secretary, 91, Petty France, Westminster, S.W. 1. Charge £1.

NOVEMBER 10.—**Leeds.**—CASTINGS.—Supply of iron castings to the Electricity Department of the T.C. Mr. C. Nelson Hefford, Manager, 1, Whitehall-road, Leeds.

NOVEMBER 14.—**Edinburgh.**—TRAMCAR BODIES.— Supply of 56 top-covered car bodies, for the Tramway Dept. Tramways Engineer, Edinburgh.

NOVEMBER 15.—**Port Elizabeth.**—SEWAGE LIFTING PLANT.—(*a*) Supply and erection at proposed pumping station of suitable pumping machinery, cast-iron rising main, foundations for plant, &c.; (*b*) an alternative tender for the supply only of machinery and pipes, for the Municipal Council. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

NOVEMBER 28.—**New Zealand.**—CRANE.—Supply to the Auckland Harbour Board, New Zealand, of one 1-ton fixed pedestal crane, for King's Wharf. Messrs. W. and A. McArthur, Ltd., 18-19, Silk-street, Cripplegate, E.C.2. Deposit £1 1s.

NOVEMBER 28.—**New Zealand.**—PLATE GIRDERS.—Supply of plate girders to the Public Works Department, for the Orepuki-Waiaun Railway. Department of Overseas Trade, 35, Old Queen-street, S.W.

DECEMBER 5.—**New Zealand.**—TELEPHONES.—For telephone system for the Mangahoo Power House. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

DECEMBER 12.—**New Zealand.**—PLATE GIRDERS.—Supply to the Public Works Department of plate girders, for the Lawrence-Roxburgh and the Taneatue Railways. Department of Overseas Trade, 35, Old Queen-street, S.W.

DECEMBER 18.—**Victoria.**—COAL HANDLING PLANT. —For coal handling plant for the Morwell Power scheme, for the Victorian State Electricity Commission. Agent-General for Victoria, Melbourne-place, Strand, W.C.2. Deposit £2 2s.

DECEMBER 31.—**Argentine.**—RAILWAY.—Construction and equipment of 650 and 185 kilometres of one metre gauge railway as well as for the financing of the same, for the State Railways of the Province of Buenos Aires (Argentine Republic). Argentine Legation, Aldford House, 26, Park-lane, W.1.

JANUARY 31. — **Australia.** — ELECTRICAL PLANT.— Supply of steam turbine and other plant to the Morwell Power Station, for the State Electricity Commission. Agent-General for Victoria, Melbourne-place, Strand, W.C. Deposit £2 2s.

FEBRUARY 1. — **Auckland.** — ELECTRIC CRANES.— For the supply of twelve five-ton (alternatively three-ton) semi-portal balanced jib electric quay cranes, four five-ton (alternatively three-ton) balanced jib electric roof cranes, and six one-ton electric monorail cranes, for Auckland Harbour Board. Messrs. W. & A. McArthur, Ltd., 18-19, Silk-street, Cripplegate, London, E.C. 2. Deposit £2 2s.

NO DATE.—**Merthyr Tydfil.**—INSTALLATION OF HEATING APPARATUS.—For installing heating apparatus at Cosy Cinema, Penydowau, Merthyr Tydfil, for the Howard Cinema Co. Mr. A. Jones, "Mertonville," Newbridge, Mon.

NO DATE.—**Selby.**—BRIDGE.—Erection of a girder or ferro-concrete bridge, for the U.D.C. Mr. Bruce Gray, Council Offices, Selby.

ROAD, SANITARY, AND WATER WORKS.

OCTOBER 21.—**Margate.**—SEWAGE WORKS.—Construction of sewage outfall works, building, screens, pump, for the T.C. Mr. Ernest A. Borg, Borough Engineer, 13, Grosvenor-place, Margate.

OCTOBER 21.—**Newport (Mon).**—WATERWORKS.—Laying and jointing of about 28 miles of cast-iron pipes, construction of a service reservoir, bridges, valve houses, and other works, for the T.C. Messrs. G. H. Hill & Sons (Westminster), 3, Victoria-street, Westminster. Deposit £5.

OCTOBER 21.—**Stevenage.**— BOREHOLE.—For sinking a borehole at the bottom of an existing well and supplying a pump, for the U.D.C. Mr. W. O. Times, Clerk, Council Offices, Stevenage. Deposit £2 2s.

OCTOBER 23.—**Alnwick.**—DRAINAGE.—For laying sanitary pipes, &c., South Togston, for the R.D.C. Mr. T. Henderson, Togston-crescent.

OCTOBER 23.—**Loughborough.**—ROADS.—(1) Widening of Radmoor-road; (2) storm water sewers in Packe-street and Frederick-street, for the T.C. Mr. A. H. Walker, A.M.I.C.E., Borough Surveyor, Town Hall, Loughborough. Deposit £2 2s.

OCTOBER 23.—**Mitcham.**—ROADS.—For works of road improvement in Church-road and Christchurch-road, for the U.D.C. Surveyor, Broadway House, London-road, Lower Mitcham.

OCTOBER 23.—**Prestwich.**—ROADS.—(*a*) Supplying approximately 1,000 tons 2 in. to 2½ in. tar macadam, and 300 tons ½ in. tar macadam topping; or (*b*) supplying and laying complete material, for the U.D.C. Surveyor, Town Hall, Prestwich.

OCTOBER 23.—**Sheerness.**—SEWERAGE WORK.—Construction of about 1,640 lineal yards of stoneware pipe sewers, &c., for the U.D.C. Mr. Vincent H. Stallon, Clerk, Sheerness. Deposit £5.

OCTOBER 23.—**Walsall.**—SEWERS.—Construction of 532 yds. of 9 in. and 420 yds. of 12 in. stoneware pipe sewers, &c., in Green-lane and between Green-lane and Bloxwich-road, for the T.C. Mr. J. Taylor, Borough Engineer, Council House, Walsall.

OCTOBER 24.—**Congleton.**—SEWER.—Laying a 9 in. sewer at Wheelock Heath, approximately 230 yards, for the R.D.C. Mr. H. Ferrand, Clerk, Crewe-road, Sandbach.

OCTOBER 25.—**Ebbw Vale.**—LAYING OF TAR MACADAM.—For laying about 10,000 sup. yards of tar macadam 4 in. thick on the Gautre site, Ebbw Vale, for the U.D.C. Mr. P. T. Davies, Housing Architect, Council Offices, Ebbw Vale.

OCTOBER 25.—**Ebbw Vale.**—PLANTING.—For planting of about 3,000 yards of best oval leaf three-year-old privet on the Gautre site, Ebbw Vale, for the U.D.C. Mr. P. T. Davies, Housing Architect, Council Offices, Ebbw Vale.

OCTOBER 25.—**Wood Green.**— ROADS.—Private street improvements in Durnsford-road, for the U.D.C. Surveyor, Town Hall, Wood Green. Deposit £1 1s.

OCTOBER 27.—**Durham.**—CULVERT.—Lining Chester Dene culvert with brickwork, for the C.C. Mr. A. E. Brookes, County Engineer, Durham.

OCTOBER 28.—**Cleator Moor.**—SEWERS.—Constructing about 1,800 yards of 9 in., 12 in., and 15 in. pipe sewers, &c., also the construction of Bacterial Sewage Purification Works, for the U.D.C. Messrs. Taylor & Wallin, Commercial Union Buildings, 47, Pilgrim-street, Newcastle-on-Tyne. Deposit £5.

OCTOBER 28.—**Falkirk.**—SEWER.—Laying of a sewer from Glasgow-road to Cauldhame Farm, for the T.C. Mr. William Gibson, Burgh Engineer, Arnotdale, Falkirk.

OCTOBER 28.—**Harrogate.**—CULVERT, &C.—Construction of foundations and of a short culvert, at the Gas Company's Works, Ripon-road. Mr. Frank H. Robinson, Engineer, Gas Office, James-street, Harrogate.

OCTOBER 28.—**Paddington.**—ROADS.—For paving the carriageway and footways of Biddulph-road (between Elgin-avenue and Lauderdale-road), for the B.C. Borough Surveyor, Town Hall, Paddington, W.2. Deposit £1 1s.

OCTOBER 28.—**Stevenage.**—BOREHOLE.—For sinking a borehole at the bottom of an existing well and supplying a pump, for the U.D.C. Mr. W. O. Times, Clerk, Council Offices, Stevenage. Deposit £2 2s.

OCTOBER 30.—**Brynmawr.**—SEWERAGE WORKS.—Construction of sewage purification works and about 1,300 lin. yards of outfall sewer by local unemployed labour, for the U.D.C. Mr. W. J. Lomax, Engineer, 11, Fold-street, Bolton. Deposit £5.

OCTOBER 30.—**Caerphilly.**—SEWER.—Construction of 1,100 lin. yards of 9 in. and 6 in. sewer at Ystrad Mynach and Caerphilly, for the U.D.C. Mr. T. H. Richards, Surveyor, Caerphilly. Deposit £1 1s.

OCTOBER 30.—**Newark.**—SEWAGE DISPOSAL.—For sewage disposal works, for the T.C. Messrs. W. H. Radford & Son, engineers, Albion Chambers, Kingstreet, Nottingham. Deposit £3 3s.

OCTOBER 31.—**Doncaster.**—SEWAGE SCHEME.—Construction of storm overflow chambers, screening chambers and screen house, detritus tanks, new pumping station substructure, storm water tanks, sludge lagoons, culverts, river retaining walls, 21 in. C.I. rising main, &c., for the T.C. Mr. F. Oscar Kirby, Borough Engineer, 2, Priory-place, Doncaster. Deposit £5 5s.

OCTOBER 31.—**Doncaster.**—SEWAGE WORKS.—Settling tanks, percolating filters, and supplying media, humus tanks, sludge lagoons, effluent channels and sewer, sludge mains, rising mains, roads, &c., for the T.C. Mr. F. Oscar Kirby, Borough Engineer, 2, Priory-place, Doncaster. Deposit £5 5s.

JANUARY 8.—**Buenos Aires.**—SEWAGE SYSTEM.—The Department of Sanitary Works are calling for tenders for the construction of a sewerage system at Mendoza, the estimated cost of which is stated to be approximately £200,000. No further particulars concerning the scheme are at present available.

Competitions.

✱DECEMBER 1.—**Ryde, I.W.**—PAVILION.—The T.C. invite designs for a pavilion to be erected in the Eastern Esplanade Gardens, Ryde. Premiums, £50 (or £300 to carry out the work), £30, £20. Mr. B. F. Holmes, M.Inst.M.&Cy.E., Borough Surveyor, Ryde.

(*See Competition News, page* 570.)

Auction Sales, Tenders, etc.

OCTOBER 24. — **Langport, Somerset.** — Messrs. F. L Hunt & Son will sell by auction, at the Langport Arms Hotel, at 3 p.m., extensive builder's and contractor's premises, &c., at Langport, Somerset, on the main line, G.W.R. Auctioneers, Langport, Somerset.

OCTOBER 25. — **Keston, Kent.** — Messrs. Baxter, Payne & Lepper will sell, at the London Auction Mart, 155, Queen Victoria-street, at 2.30 p.m., by order of the Rt. Hon. Earl Derby, K.G., the Keston Lodge Estate, comprising freehold country residence, &c. Auctioneers, Bromley, Beckenham, and Orpington, Kent; and 28-30, Lime-street, E.C.3.

OCTOBER 25. — **London.** — Messrs. St. Quintin, Son & Stanley will offer for letting by auction on building lease for 99 years, at Winchester House, E.C., at 2.30 p.m., building site now occupied by premises Nos. 200-203, Tottenham Court-road, having frontage of about 83 ft. 6 in. and a total ground area of about 5,000 sq. ft. Auctioneers, 50, Threadneedle-street, E.C.2.

✱OCTOBER 26.—**Battersea, S.W.**—Messrs. Veryard & Yates, F.A.I., will sell, without reserve, at Cambridge-road, at 1.30, timber and building materials. Auctioneers, 365, Norwood-road, S.E.27.

✱OCTOBER 26.—**London, E.C.1.**—Messrs. Fryer, Cooper & Co. will sell 20,000 pieces of wall-paper at their rooms. Auctioneers, 3, Redcross-street, E.C. 1.

✱NOVEMBER 1.—**Westminster.**—Messrs. Veryard & Yates, F.A.I., will sell, without reserve, at Tufton-street, at 1.30, hut-sections, timber and building materials. Auctioneers, 365, Norwood-road, S.E.27.

Public Appointments.

OCTOBER 23. — **Margate.** — TEMPORARY ARCHITECTURAL ASSISTANT.—Temporary Architectural Assistant. Mr. Ernest A. Borg, Borough Engineer and Surveyor, 13, Grosvenor-place, Margate.

OCTOBER 23.—**Scunthorpe.**—ARCHITECT OR QUANTITY SURVEYOR.—Scunthorpe and Frodingham U.D.C. invite applications from architects or quantity surveyors for measuring up and adjusting accounts in connection with the erection of 376 houses on the Crosby Housing Site. Mr. J. F. Auld, Clerk, Council Offices, Scunthorpe.

OCTOBER 25. — **Beckenham.** — CARETAKER.—Caretaker of housing estate, for the U.D.C. Mr. John A. Angell, Surveyor, Council Offices, Bromley-road, Beckenham.

OCTOBER.—**India.**—ASSISTANT INSPECTOR OF STORES.—Assistant inspector of stores required by the High Commissioner for India, Director-General, India Store Department, Belvedere-road, Lambeth, S.E.1. (Quote Ref. S.5967/1922.)

PROPOSED NEW BUILDINGS & OTHER WORKS.*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council

ABERDEEN.—Plans passed: House, back of Hilton-road, for Messrs. Williamson & Bell; house and garage, King's-gate, for Mr. J. H. Garden, per Messrs. Walker & Duncan; shop and house, Ashley-road, for Miss Buchan, per Messrs. D. & J. K. M'Millan: house and garage, Cornhill-road, for Mr. W. M. M'Leman, per Mr. Geo. Watt; alterations, 79, Argyll-place, for Mr. P. P. Wiles, per Messrs. A. Hall & Son; alterations, 13, Albert-terrace, for Mr. W. M. Brechin, per Mr. G. Watt; additions, Froghall Granite Works, for Messrs. C. M'Donald, Ltd., per Mr. R. C. Garden.

AYLESBURY.—Plans passed by T.C.: Showroom, Buckingham-street, for Messrs. Chamberlin & Sons; additions to premises, Walton-street, Mr. F. Taylor, for Messrs. G. T. De Fraine & Co., Ltd.; additions to cottages, Havelock-street, Mr. W. J. Cumberland, for Messrs. Whitney & Co.

BARNSLEY.—The Borough Surveyor has been instructed to prepare plans and estimates for the erection of six houses to fill up certain vacant sites in the Huddersfield-road scheme.—Plans passed:—Yorkshire Butchers' Hide and Skin Co., Ltd., garage, Bailey-street; M. & G. Jackson, garage, bakehouse, &c., Shambles-street; Exors. of J. W. Rymer, alterations to shop, 33, Eldon-street; Boots (Northern), Ltd., alterations to premises, 24, Market-hill; Shell Mex, Ltd., shed and fencing to works, Portland-street; Needham Bros. & Brown, erecting shop to works, Pontefract-road; J. Thompson, two dwelling-houses, Swift-street (approved).

BECCLES.—Plan passed by T.C.: House, St. Mary's-road, for Mrs. Granville Baker.

BEDWELLTY.—The U.D.C. has decided to acquire land for laying out as an area cemetery. The Council has also decided to purchase a first aid fire engine at an approximate cost of £320.

BRADFORD.—The T.C. has instructed the Housing Committee to submit as early as possible plans and proposals for the erection of dwellings to relieve the present congestion.

COLWYN BAY.—The Conway and Colwyn Bay Joint Water Board is considering a proposal to construct a new main at an estimated cost of £13,000.

CORRIS.—At a special meeting of the West Merioneth Methodist Presbytery it was decided that another chapel should be erected on a new site, which was given by the Rev. T. E. Roberts.

DORKING.—Plans passed by U.D.C.: Four houses in Westcott-road, for Mr. R. Arthur; house, for Messrs. Collins & Son; reconstruction of premises, 12, High-street, for Messrs. Sainsbury.

DOVER.—The British Oxygen Company are about to establish works in the town.

DUNDEE.—Plans passed by T.C.: Adelaide-place, garage, for Maclaren, Soutar & Salmond; Arbroath-road, West Ferry, sub-station, for Dundee Electricity Supply Department; Bradbury-street, Downfield, alterations, for James Petrie; Commercial-street, alterations, for the Bodega Co., Ltd.; Fairfield-street, additions, for John Howe & Son; Martin-street, dwelling house, for J. B. Henderson.

FOLKESTONE.—Plans passed: Messrs. J. G. Parsons & Sons (owners, architects and builders), two semi-detached houses in Broadfield-road; Mr. S. Vant (builder), (Mr. J. Vant, architect), two detached houses in Limes-road; Messrs. F. W. Clark & Sons (owners, architects and builders) twenty-four semi-detached houses in Canterbury-road; Mr. T. Holker (owner), (Mr. G. Reynolds, architect), detached house in Broadfield-road.

GILLINGHAM.—Plans passed by T.C.: Twelve houses, St. John's-road, Mr. H. R. Brunning; bungalow, Barnsole-road, Mr. H. Potentier; bungalow, Orchard-road, Wigmore, Mr. E. Farrington; house, Wigmore-road, Mr. B. Barham; extension to Wigmore Club, Spring Vale, Wigmore, the Trustees; house, 38, Livingstone-road, Mr. A. Seaton; addition to Conway Hall, Old Brompton, the Trustees of Holy Trinity Church.

HALIFAX.—Plans passed by T.C.:—Maurice Stead, weaving shed, Old-lane; Egbert Tattersall, conversion of two cottages into one, Syke-lane, Causeway Foot; Wilkinson, Morley & Co., new combing shed, Beechwood-road; John Fearnley, Dutch barn and joiner's workshop, Wrigley Hill Farm; John William Speak, bath, &c., 67, Thomas-street South; Trustees of the Halifax Builders' Exchange, alterations, Clare-road; Mary Ann Priestley, bath, &c., 121, Spring Hall-lane; J. Crossland & Sons, timber shed, Bedford-street North; George Walton, bathroom, &c., 294, Pellon-lane; John Crossley & Sons, Ltd., print shed lavatories, Dean Clough Mills; Lewis J. Earnshaw, bathroom, &c., Coronation-road and Kliffen-place; Abraham Haigh, alterations to garages, Rhondda-place; David Garside, bathroom, &c., 27, Carlton House-terrace; Mrs. Chas. Ed. Haley, bath, &c., 10, Heathfield-place; Charles Wade bath &c., 32, Warley-road; Arthur Allott, detached house, Granny Hill Top; Walter Midgley, offices and shops, Fountain and Powell-streets; The Economic Stores, Ltd., piggeries, Springfield Farm, Shibden; Coun. E. W. Lyon, bungalow, Rhodes-street; Arthur Clegg, house, Broomfield-avenue; Marmaduke Furness Farrar, bungalow, Rothwell Mount; Ovenden Transport Co., extensions to garage, Keighley-road.

HASTINGS.—Plans passed by T.C.: Detached house, Alfred-road, Mr. F. J. Holdoway (owner), Mr. J. Hunt (architect): new entrance and two flats over Silverhill Picture House, London-road, Mr. H. Sereno (owner), Mr. P. H. Oxley (architect); additional story to ice factory and cold stores, Rock-a-Nore, The Lightfoot Refrigeration Co. (owners), for Messrs. H. & J. Taylor; canopy, east entrance to Queen's Hotel, Directors of the Queen's Hotel Co. (owners), Mr. P. H. Oxley (architect); timber store, Gas Works Yard, Mr. F. Bones (owner), Messrs. Callow & Callow (architects); garage at "Castlemaine," Hollington-park, Mr. T. Tompsett (owner), Mr. H. J. Richardson (architect); detached house, public footpath leading from Battle-road to Old Church-road, Mr. T. G. Harmer (owner). Mr. H. M. Jeffery (architect).

HOLME CULTRAM.—Plans passed by U.D.C.: Mr. H. D. Matthews, two semi-detached houses on the Silloth Park estate.

HORSHAM.—The Justices have passed the plans of a picture theatre in London-road, for the Blue Flash Cinema Co.

HULL: Plans passed by T.C.: Mrs. W. Jessop, house, Beverley-road; J. E. Railton, house, Caugheystreet; J. H. Fenwick & Son, Ltd., two houses and shops, Hedon-road; D. Tomlinson, house and stables, Upper Union-street; H. Smith, two houses, Monmouth-street; G. Chapman, house, Newland-park; Yorkshire Estate Co., two houses, Newcomen-street; J. E. Wray, house, Cottingham-road; H. Fox, two houses, Victoria-avenue; H. Smith, four houses, Monmouth-street; Yorkshire Estate Co., two houses, Faraday-street; Markham, Ward & Flowers, four houses, Newland-park; D. Tomlinson, house, Upper Union-street; N. E. Wright, workshop, Newland-avenue; A. Burley, stable, Stepney-lane; Hull Motor Transport and Engineering Co., roof over yard, Dansom-lane; J. S. Torr, alterations, Great Thornton-street; A. & M. Smith, Ltd., fish-washing shed, St. Andrew's Dock; Bromby & Co., Ltd., workshop additions, Bond-street; A. Kincade, shop front, 805, Hessle-road; M. Sugarman, shed, Upper Union-street; K. Edelson, shop and workshop, Hessle-road and Manchester-street; S. Smith, shop front, 823, Hessle-road; G. Bower, workshop, 98, New Bridge-road; J. Fisher, lavatory, Sewer-lane; T. W. Wrigglesworth, bay windows, 175, Walton-street; British Oil and Cake Mills, Ltd., oil heater house, Foster-street; R. Sinclair Tobacco Co., Ltd., alterations, Whitefriargate; London Joint City and Midland Bank, Ltd., bank premises, 52, Witham; G. Jackson & Sons, office additions, 36, Witham; Hollis Bros. & Co., Ltd., cyclone house, Craven-street; G. & T. Earle, Ltd., office additions, Wilmington; G. T. Carlton, shop front, 745, Hessle-road; J. B. Hudson, additions, Regent Club, Beeton-street; G. H. Scorrer, lavatory, &c., New Cleveland and Spyvee-streets; Universal Oil Co., Ltd., shed, Oak-road, Stoneferry; Trustees, Primitive Methodist Fourth Circuit, wash-house, 14, Coltman-street; M. Garton & Sons, workshop, 132, St. George's-road; N. Goldstone, lavatory, Collier-street: Hull Brewery Co., Ltd., lavatory, "Old Black Horse" Hotel, Carr-lane; Trustees, Excelsior Recreation Club, cellar, &c., Manchester-street; S. A. Cullington, wash-house, Hamlyn-avenue; Reckitt & Sons, Ltd., office lavatories, Dansom-lane; Trustees, Nunburnholme Liberal Club, alterations and additions, 327A, Beverley-road; A. Barker, store, Anlaby-road and Regent-street; Beecroft & Wightman, additions, Burleigh-street; Shell-Mex, Ltd., garage additions, Leonard and Grosvenor-streets; C. Butler, alterations, Holderness-road and Balfour-street; W. D. Marks & Son, petrol store, Sewer-lane; W. Garbutt, garage, Beverley-road; J. Jordan, shed, 101, St. George's-road; H. May, alterations and additions, 269, Anlaby-road; Mrs. W. Jessop, garage, Beverley-road; J. W. Loncaster, office, Madeley-street; H. T. Brown, additions, 2, Hereford-street; H. Smith, garage, Hessle-road and Monmouth-street; M. Sugarman, engine shed, Upper Union-street; G. H. Scorrer, Ltd., additions, Cleveland-street; W. Garbutt, additions, Beverley-road; J. T. Dyson, alterations, 90, Peel-street.

LONDON (LEWISHAM).—Plans passed by B.C.: L. Steward, house, 171, Burnt Ash-hill; W. White, two bungalows, Wenn-road; J. N. Randall Vining, house, Sydenham-hill; W. J. Cearns, extension to church hall, Harden-road.

LONDON (WESTMINSTER).—Building, 52, Haymarket, for T. S. Darbyshire; rebuilding of "The Two Chairmen" public house, Dartmouth-street, for Watney, Combe, Reid & Co.

MAIDENHEAD.—Plans passed by T.C.: Shop front, 87-89, High-street, for Messrs. McIlroy; bungalow, Belmont-road, for Cripps & Green; alteration, Market-street, for Mr. R. A. Butler; additions to 72, High-street, for Liptons, Ltd.; house, Boyne-hill-avenue, for Mr. V. Skeeles; boiler-house, for the Maidenhead Picture Theatre; shop, 61, Cordwallis-road, for Mr. R. A. Butler; bungalow, "The Gables," Summerlease, for Mr. Hooper.

MARGATE.—The T.C. have adopted a proposal to construct a bathing pavilion on the Marine-terrace sands at an estimated cost of £25,000. The pavilion will provide accommodation for three-hundred persons and hot and cold shower-baths, and it is hoped to have it ready by next season.

MAPLE.—Plans passed by U.D.C.: House, for Mr. Dawson, in Ley Hey Park; seven houses, for Mr. Eastwood at Hawk Green.

MELTON.—Plans passed by U.D.C.: Six houses, Burton-street, for Mr. Ernest Clarke; additions, Craven Lodge, for the Leicestershire Education Committee.

NEWARK.—The Ministry of Health have written the Council, sanctioning a loan of £30,000 for the sewage

* See also our List of Contracts, Competitions, etc.

disposal works and sewers. This follows a loan of £25,000, for sewers, already sanctioned. The engineers to the scheme are Messrs. Radford & Son, of Nottingham, acting in conjunction with the Council's Surveyor, Mr. J. W. Hipwood.

OXFORD.—Plans passed by T.C. :—J. R. Baffan, 28, Thorncliffe-road, house, Thorncliffe-road; Bartlett & Gardner, 7, St. Aldate's-street, pair of houses, Abingdon-road; City of Oxford Motor Services, Ltd., extension to Parcel Receiving Department, 138, High-street; Mrs. H. Wright, 89, St. Mary's-road, additional story to laundry; Worcester College, additions to gardener's cottage; Fellows and Provost of Oriel College, conversion of almshouses, "Bartlemas," Cowley-road, to dwelling-house; Hall's Oxford Brewery Ltd., Queen-street, additions to Magdalen Arms P.H., Iffley-road; John Somerton, Friars Entry, bakery, Red Lion-square; Trust Houses, Ltd., addition to Clarendon Hotel, Cornmarket-street; Symm & Co., Little Clarendon-street, house, Charlbury-road; Oxford Carriers and Repairers, Ltd., Iffley-road, petrol store, Iffley-road.

ROCHDALE.—Plans passed by T.C. :—Phœnix Brewery Co., Ltd., alterations to Union Inn, Mills-street; East & Cocker, three bungalows, Meanwood Brow, Rooley Moor-road; Ed. Heywood, six dwelling-houses, Grove-terrace, off Regent-street; Fletcher Bolton, petrol store, Oldham-road; Lily Chadwick, washhouse, 93, Mitchell-street; Wm. Wood, two dwelling-houses, Oldham-road, near Summit; Edmund Lord, extensions, Oakenrod Mount; Emma Self, kitchen, 65, Lisbon-street; North British Eyelet Co., celluloid store, Boundary-street; John Ormerod & Sons, Ltd., new roof, John-street, C.M.; E. Holt, heating chamber, George-street; Mrs. Lord, bathrooms, &c., 37 to 43, Merefield-street; J. C. Buckley, outbuilding, 13, Jane-street; Eagle Raising and Finishing Co., Ltd., starch mixing room, Spring Mill, Smallbridge; J. Ross, additions, 3, Sparthfield-avenue.

RHONDDA.—The Ocean Colliery Co.'s Area Recreation Scheme has in hand the purchase of sites at Treharris, Ynysybwl, Blaengwynfi, and Nantymoel for laying out as recreation grounds. The site and half the cost of erection has been allocated for a boys' club at Treharris. The club is estimated to cost over £1,500. The erection of a nine-hole golf course at the Waun, Ton Pentre, is also contemplated. Capt. J. Glyn Jones, M.C., is secretary.

ROTHESAY.—The T.C. has agreed to the erection of an entertainment pavilion on the Esplanade, and plans and estimates are to be got.

SALFORD.—Plans passed by T.C. : Construction of—Transformer sub-station at junction of Moor-lane and Church-lane, Broughton; motor garage and tool store, 461, Bury New-road, Broughton; alteration to "Hanging Gate" beerhouse, Tatton-street, Salford; additions to bakery, Park-street, Salford; extension of confectionery works, 37, The Crescent, Salford; construction of dwelling-house, Park-street, Broughton; garage, "Ashville" and the "Croft," Worthington-drive, Broughton; garage, &c., "Barrcroft," Bury Old-road, Broughton; alterations to shops and Public Assembly Room at Junction of Great Cheetham-street, west, and Hilton-street, Broughton; "Bridge Hotel," Regent-road, Salford.

UPPER RENFREWSHIRE.—Plans passed by Buildings' Committee of the Upper District: Cottage of four apartments at Kilmarnock-road, Whitecraigs, for W. S. Naismith; cottage of five compartments at Kilmarnock-road, Whitecraigs, for James M'Kendrick; twenty-six self-contained terrace houses of six apartments at Ormonde-avenue, Clarkston-road, Cathcart, for Matthew Dickie, Underwood, Busby-road, Giffnock; electric sub-station for Walker, Drybrough & Co., Arkleston Printworks, Paisley; addition to works at Muriel-street, Barrhead, for Saunders & Conner, Ltd., Darnley Works; cottage of four apartments at Roddinghead-road, Whitecraigs, for Walter H. M'Farlane, jun.; double villa of eight apartments each at Craigmethan-road, Whitecraigs, per David Harper & Watson, solicitors.

WATH.—A scheme agreed between the owners and workmen at the Wath Main Colliery for the installation of pithead baths has received the approval of the central committee administering the Miners' Welfare Fund, and the grants due to the colliery from that fund will be utilised in that way. The accepted design provides for a long, lofty building, 44 cubicles, and shower-baths running along either side (88 in all), and accommodation in the centre for dressing and changing, and the cleansing and steam-heating of clothing.

WEYMOUTH.—Plans passed by T.C.: Bungalow, Dorchester-road, for E. W. Welsted; bungalows, Buxton-road, for K. Openshaw; lock-up shop and store, 4, St. Edmund-street, for C. G. Chalker; additions to "Rosie," Melcombe-avenue, Rendell & Son, for F. Payne.

FIRES.

DOVERCOURT.—The lock-up shop of Mr. Halls, fruiterer, and the cycle shop of Mr. Haryott have been destroyed by fire.

GLASGOW.—Damage estimated at about £10,000 has been caused by an outbreak of fire in a four-story building in Falfield-street, Glasgow. The premises involved were occupied by various firms, and the greatest damage was in the premises of Messrs. Dunlop & Jacks, stationery manufacturers.

GLASGOW.—An outbreak of fire has occurred at 15, Catherine-lane, occupied by the publishing firm of Messrs. Wood & Gibb.

HUDDERSFIELD.—One shop was burnt out and two others were damaged in consequence of a fire which occurred in Morley-lane, Milnsbridge.

NEATH.—The stores of Mr. J. Bowden on the Croft have been completely destroyed by fire.

PENARTH.—An outbreak has completely gutted the Salvation Army barracks at Penarth.

PRESTON.—The works of the British Handle Manufacturing Co. have been damaged by fire.

UFFORD.—A fire at Crow's Hall Farm, Ufford, owned and occupied by Mr. Arthur Sporle, resulted in the total destruction of all the farm premises.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him *not later than Tuesday evening.*

* Denotes *accepted.* † Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modifications.*

AYR.—For erection of 24 houses, Woodfield Site, Ayr, for the Housing Committee. The Burgh Surveyor, Ayr :—

Digger, brick, and mason work—
*George Porter, Bellshill £4,404 6 6

Carpenter and joiner work—
*David Kirkland, Ayr 3,466 7 3

Glazi r work—
*A. Higginbotham & Son, Bradford 65 16 0

Slater and roughcast work—
*A. Dalrymple, Ayr 1,060 11 9

Plumber work—
*H. Twaddle & Son, Glasgow.. 1,760 0 0

Plaster and cement work—
*J. McKinlay & Co., Glasgow.. 1,021 13 3
Total £11,778 14 9
Equal to £491 per house over all.
(Subject to the approval of the Scottish Board of Health for Scotland.)

BARNSLEY.—For making and completing five back roads, within the Borough, including back road between Queen's-avenue and Blackburn-lane. Mr. H. Taylor, Borough Surveyor, Fairfield House, Barnsley :—

*S. Dryden, Doncaster..... £555
Other back roads to be made up by direct labour.

BOLTON-ON-DEARNE.—For erection of 78 houses, or the U.D.C. :—

*Firth & Whittington, Ltd., Doncaster—
12 A2 type .....each £360
48 A3 type ..... ,, 355
18 B type ..... ,, 415
Road making and sewering 1,105

BUXTON.—For reconstruction of the natural mineral water baths, for the B.C. The Borough Engineer, Buxton.

G. A. Pillatt & Sons, Nottingham	19,684	19	2
H. Robinson, Buxton	19,026	13	5
John F. Bush, Nottingham	19,006	3	6
J. W. Wildgoose & Sons, Matlock	18,769	16	2
Wm. Pattison & Sons, Ltd., Ruskington	18,629	0	0
Robert Carlyle & Co., Ltd., Manchester	18,524	0	0
C. D. Potter & Sons, Barnsley	18,253	0	0
Henry Boot & Sons (London), Ltd., Sheffield and London	18,019	0	0
P. & W. Anderson, Ltd., Sheffield & London	18,000	0	0
Wm. Moss & Sons, Ltd., Loughborough	18,000	0	0
E. Morley & Sons, Derby	17,955	16	10
W. M. Robertshaw, Caistor, Lincs.	17,520	0	0
J. Gerrard & Sons (1920), Ltd., Swinton, Manchester	17,500	0	0
*Jas Ridyard & Sons, Ltd., Ashton-under-Lyne	16,604	6	9
Borough Surveyor's estimate..	17,890	0	0

CARDIFF.—For the supply of roughing filters at the Taff Fawr Valley Waterworks, for the T.C. :—

*Jewell Export Filter Co..... £37,866

GREESBROUGH.—For the erection of eight houses, for the U.D.C. :—

*Smith & Hawley, Grimesthorpe—£352 per house

HINCKLEY.—For construction of a movable timber floor to the swimming baths, Station-road, for the U.D.C. Mr. J. S. Featherstone, Surveyor, Council Offices, Hinckley. Quantities by Surveyor :—

W. J. Hall & Son, Hinckley	£440	0	
Clark & Faulkes, Hinckley	437	0	
W. H. Littler & Son, Hinckley	410	0	
J. Goodman, Hinckley	410	0	
Greaves, Bros., Hinckley	409	4	
J. Paul & Sons, Burbage, near Hinckley	401	18	
A. Jeffcote, Hinckley	395	10	
Messrs. Bloxham & Goadby, Hinckley	375	0	
A. Russell, Hinckley	370	0	
*H. Farmer, Hinckley	350	0	

HUDDERSFIELD.—For conversion of offices and warehouse into cinema theatre, for Messrs. Freedman's Pictures, Ltd. Messrs. Stocks, Sykes & Hickson, architects, 1, St. Peter's-street, Huddersfield :—

Masons—
*John Radclyffe & Sons, Huddersfield

Joiners—
*M. Grant & Son, Huddersfield

Plumbers—
*Geo. Mitchell, Huddersfield

Slaters—
*Pickles Bros., Huddersfield

Plasterers—
*John Robinson & Son, Huddersfield

Painter—
*A. Beevers & Sons, Huddersfield

Decorators—
*Goodalls, Ltd., Manchester

Fibrous plasterers—
Goodalls, Ltd., Manchester

Electricians—
J. W. & R. Graham, Huddersfield

Concreters—
John Cooke, Huddersfield

Heating—
C. Watson & Sons, Huddersfield

Ventilating—
P. M. Walker & Co., Halifax

Steelwork—
Astley Brook & Co., Ltd., Huddersfield

Canopy—
*James Allan, Senr., & Co., Ltd., Glasgow

Mural Decorations—
*J. R. Gauld, Huddersfield
Total £15,331 14 10

HULL.—Renewal of tramway track from Walker-street to Dairycoates, for the T.C. :—

City Engineer	£16,000	0	
A. Stark & Sons, Ltd.	10,025	0	
G. Bailey, Ltd.	8,742	10	
*Sangwins, Ltd.	8,300	0	

HULL.—For fittings at Garden Village Library, for the T.C. :—

*Darneley & Son £115

HULL.—For erection of houses at North Hull, for the T.C. :—

*H. Johnson, Hull, for eight blocks of 4 non-parlour type, at per block	£1,504	1	0
*H. Johnson, Hull, for one block of 2 non-parlour type, 2 bedrooms, at for the block	692	19	0
*A. N. Wincop, Hull, for eight blocks of 2 non-parlour type, 3 bedrooms, at per block	795	11	11

IPSWICH.—For erection of War Memorial Wing at the East Suffolk and Ipswich Hospital. Mr. H. Munro Cautley, architect, 10, The Thorofare, Ipswich :—

G. A. Kenny, Ipswich	£44,444
Frank A. Roper, Ipswich	43,500
R. Bennett & Snare, Ipswich	41,489
Allen Fairhead & Son, Enfield	41,000
W. Pattinson & Sons, Ltd., Sleaford	40,800
Lavington (1916), Ltd., South Lambeth	40,763
Henry Knight & Son, Tottenham	40,368
Thurman, Ltd., Felixstowe	39,939
F. E. Thackeray & Co., Huntingdon	39,826
Foster & Dicksee, Ltd., Rugby	39,745
Wilson Lovatt & Sons, Ltd., Wolverhampton	39,497
W. Wheeler & Sons, Bergholt	39,349
Hutton & Son, Colchester	39,269
Chas. A. Green, Ipswich	39,000
Coulson & Son, Ltd., Cambridge	38,900
Kidman & Sons, Cambridge	38,779
A. Sadler & Sons, Ipswich	38,629
E. Catchpole & Sons, Ltd., Ipswich	38,530
S. E. Moss, Southend-on-Sea	38,500
W. T. Nicholls, Ltd., Gloucester	38,474
W. Jones & Sons, Westminster	38,344
J. Noller, Ipswich	38,207
Cubitt & Gotts, Ipswich	37,550
Pollard & Skerritt, Ipswich	37,530
J. Cracknell, Peterborough	37,316
V. A. Marriott, Ltd., Ipswich	37,293
Wm. Saint, Ltd., Cambridge	35,997
Markwell Holmes & Co., Ltd., Grimsby	35,350
P. J. Turner, Ipswich	35,337
*W. F. Cross, Felixstowe	33,882

KENT.—For erection of premises at Bexley Welling Council School, for the Kent E.C. Mr. W. H. Robinson, County Education Architect, Maidstone :—

West Bros., Strood	£17,539	0	0
W. J. Parker, Ltd., London	16,000	0	0
W. B. Butler, Bexley Heath	15,792	10	8
Y. J. Lovell & Son, Marlow	15,620	0	0
Stagg Bros., Margate	15,375	0	0
G. Slade & Co., Ltd., Islington	13,202	0	0
Henry Kent, London	14,989	0	0
W. Moss & Sons, Ltd., London	14,955	0	0
C. Groom, Sons & Co., Ltd., Ealing	14,941	0	0
H. H. Hollingsworth & Sons, Peckham	14,887	0	0
G. E. Wallis & Sons, Maidstone	14,876	0	0
Norman Smith & Son, Maidstone	14,600	0	0
Thomas & Edge, Woolwich	14,475	0	0
C. E. Skinner & Son, Chatham	14,467	0	0
R. Merton Hughes, Baron's Court	14,421	0	0
A. E. Tong, Gravesend	14,406	0	0
W. Jones & Sons, Westminster	14,405	0	0
Hoad & Taylor, Horsham	14,300	0	0
J. Elliman, Beckenham	14,300	0	0
T. Shillitoe, London	14,200	0	0
F. Ling & Sons, Erith	14,000	0	0
Galbraith Bros., Ltd., Camberwell	13,950	0	0
J. W. Ellingham, Dartford	13,822	0	0
G. H. Gunning & Sons, Erith	13,798	0	0
W. F. Blay, Ltd., Dartford	13,665	0	0
H. Friday & Sons, Erith	12,700	0	0
*Cox Bros., Maidstone	12,313	0	0

(Continued on page 605.)

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge. £ s. d.

Best Stocks 4 2 0
Second Hard Stocks 3 17 0

Per 1000. Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons, at			
King's Cross	3 1 0	Best Blue Pressed Staffs.	9 11 6
Do. grooved for plaster.....	3 3 0	Do. Bullnose ..	10 1 6
Do. Bullnose ..	3 16 0	Blue Wire Cuts	7 11 6
Best Stourbridge Fire bricks:—			
2½ in.	11 3 0	3 in.	13 2 0

GLAZED BRICKS—

Best White, Ivory, and Salt Glazed Stretchers ..	24 0 0	D'ble Str'tch'rs	32 10 0
		D'ble Headers	29 10 0
		One Side and one End ..	33 10 0
Headers.....	23 10 0	Two Sides and one End	34 10 0
Quoins, Bull-nose and 4½in. Flats	30 10 0	Splays and Squints.....	32 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

	s. d.		
Thames Ballast	13 6	per yard,	delivered 2 miles radius Paddington.
Pit Sand	16 0	„ „	
Thames Sand	16 6	„ „	
Best Washed Sand	16 6	„ „	
½ in. Shingle for Ferro-Concrete	14 0	„ „	
¼ in. „ „	15 0	„ „	
¾ in. Broken Brick	10 6	„ „	
Pan Breeze	5 6	„ „	

Per ton delivered in London area in full van loads.

Best Portland Cement. British Standard Specification Test £3 3 0	£3 8 6	
56/- alongside at Vauxhall in 80-ton lots.		
Ferrocrete per ton extra on above	10 0	
Roman Cement	8 15 0	
Parian Cement	5 17 0	
Keene's Cement, White	5 17 0	
„ „ Pink	5 12 0	
Plaster, Coarse, Pink	3 10 0	
„ „ White	3 17 6	
„ Fine	5 12 0	
Sirapite, Coarse	3 16 0	
„ Finish	4 4 0	
Grey Stone Lime	2 16 6	
Chalk Lime	2 16 6	
Best Ground Blue Lias Lime.....	2 18 6	
Hair	17 0 0	
Granite Chippings	1 12 0	

NOTE.—Sacks are charged 1s. 9d. each and credited 1s. 6d. if returned in good condition within three months, carr. pd.

Stourbridge Fireclay in s'cks 37s. 6d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R.. per ft. cube.....	3 1
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R.. per ft. cube	3 4
Do. do. delivered on road wagons at Nine Elms Depot	3 5
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L.& S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 7
Do. do. delivered on road wagons at above stations, per ft. cube..	4 8
White basebed, 3d. per ft. cube extra.	
NOTE.—½d. ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.	
YORK STONE, BLUE—*Robin Hood Quality.*	
Delivered at any Goods Station London.	s. d.
6 in. sawn two sides landings to sizes (under 30 ft. super.) ..... Per Ft. Super	5 10½
6 in. rubbed two sides, ditto ..... „	6 4½
3 in. sawn two sides slabs (random sizes) „	2 5½
2 in. to 2½ in. sawn one side slabs (random sizes) ..... „	1 6½
1½ in. to 2 in. ditto, ditto ..... „	1 4
HARD YORK—	
Delivered at any Goods Station London.	
Scappled random blocks ..... Per Ft. Cube	6 0
6 in. sawn two sides landing to sizes (under 40ft. super.) ..... Per Ft. Super	5 4½
6 in. rubbed two sides ditto ..... „	6 0½
4 in. sawn two sides slabs (random sizes) „	2 10
3 in. ditto, ditto „	2 5½
2 in self-faced random flags .. Per Yard Super	8 4

ARTIFICIAL STONE.

Delivered in London Area in full van loads.	s. d.	
Plain	8 6	per ft. cube.
Moulded	10 0	„ „
Cills	11 0	„ „

WOOD.

GOOD BUILDING DEAL.

Inches	per stan.	Inches.	per stan.
4 × 11	£36 0	3 × 6	£22 10
4 × 9	36 0	3 × 11	32 10
4 × 8	28 0	2 × 11	32 10
4 × 7	26 0	3 × 9	30 0
3 × 8	26 0	2½ × 9	30 0
3 × 7	22 10	3 × 4½	20 10
2½ × 7	22 10	3 × 4	20 10

PLANED BOARDS.

1 × 11	40 0	1 × 9	35 0

PLAIN EDGE FLOORING.

Inches	per sq.	Inches	per sq.
½	20/-	1½	32/6
¾	22/6	1¾	40/-
1	25/-		

WOOD (*Continued*).

TONGUED AND GROOVED FLOORING. Inches	per sq.	MATCHINGS (BEST). Inches	per sq.
1	25/-	¾	17/6
1¼	32/6	1	22/-
1½	40/-	1¼	25/-

Inches	BATTENS.	s. d.
¾ × 2		2 6 per 100 ft.

SAWN LATHS.

Per bundle				0	3 0
Dry Wainscot Oak, per ft. super, as inch	0	2 6	to	0	3 0
¾ in. do. do.	0	1 10½	to	0	2 6
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0	2 3	to	0	3 0
Cuba Mahogany	0	3 6	to	0	4 0
Teak (Rangoon, Moulmein or Java), per load.. ..	45	0 0	to	50	0 0
American Whitewood planks, per ft. cube ..	0	16 0	to	0	18 0
Best Scotch Glue per cwt	6	15 0	to	—	—
Liquid Glue, per cwt.....	4	7 0	to	5	10 0

SLATES.

1st quality slates from Bangor or Portmadoc in truck loads delivered London area. Per 1,000 of 1,200.

	£ s. d.		£ s. d.
24 by 12	41 17 0	18 by 10	23 12 6
22 by 12	38 0 6	18 by 9	20 16 3
22 by 11	35 2 0	16 by 10	19 16 0
20 by 12	33 8 3	16 by 8	15 8 3
20 by 10	28 11 6		

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or	6 0 0
Staffordshire district.....	6 0 0
Ditto hand-made ditto.....	6 10 0
Ornamental ditto	6 15 0
Hip and valley tiles (per dozen) { Hand made	0 8 6
Machine made	0 8 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—	£ s. d.
R. S. Joists, cut and fitted	13 0 0
Plain Compound Girders	15 0 0
„ Stanchions	17 0 0
In Roof Work	20 0 0

WROUGHT IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £15 net value delivered direct from Works. 5 per cent. less above gross discounts, carriage forward if sent from London Stocks.)

	Tubes. (all sizes).	Fittings. Up to 2".	Fittings. Over 2".	Flanges. Up to 2".	Flanges. Over 2"
Gas	55 %	50 %	55 %	60 %	65 %
Water	50 %	45 %	50 %	55 %	60 %
Steam	45 %	40 %	45 %	50 %	55 %
Galv'd—					
Gas	45 %	42½ %	47½ %	52½ %	57½ %
Water	37½ %	34½ %	42½ %	47½ %	52½ %
Steam	27½ %	32½ %	37½ %	42½ %	47½ %

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6fts plain	3 2½	2 5	2 11
2½ in. „	3 9½	2 8	3 8
3 in. „	4 5½	2 11	4 4
3½ in. „	4 10½	3 8	5 1
4 in. „	5 5	4 1	5 10

RAIN-WATER PIPES, &c.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6fts. plain	1 10½	1 4½	1 10½
2½ in. „ „	2 1	1 7½	2 3
3 in. „ „	2 6	2 0	3 0
3½ in. „ „	2 11	2 4½	3 6
4 in. „ „	3 5	2 10½	4 3

L.C.C. DRAIN PIPES.—9 ft. lengths. London Prices per yd.: 4 in., 5/3. .. 5 in., 6/9. .. 6 in., 8/-.

IRON—	Per ton in London. £ s. d.		£ s. d.
Common Bars	12 10 0	to	13 10 0
Staffordshire Crown Bars - good merchant quality	13 10 0	..	14 10 0
Staffordshire "Marked Bars"	16 0 0	..	17 0 0
Mild Steel Bars	12 0 0	..	13 0 0
Steel Bars, Ferro-Concrete quality, basis price ..	12 0 0	..	13 0 0
Hoop Iron, basis price ..	15 0 0	..	16 0 0
„ „ Galvanised ..	20 0 0	..	31 0 0
Soft Steel Sheets, Black— Ordinary sizes to 20 g.	14 0 0	..	15 0 0
„ „ „ 24 g.	15 0 0	..	16 0 0
„ „ „ 26 g.	16 10 0	..	18 10 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality— Ordinary sizes, 6ft. by 2ft. to 3ft. to 20 g.	20 0 0	..	21 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 22 g. and 24 g.	21 0 0	..	22 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 26 g...	23 0 0	..	25 0 0
Flat and Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 9ft. 20 g.	19 0 0	..	20 0 0
Ordinary sizes, 6ft. to 9ft. 22 g. and 24 g.	19 10 0	..	20 10 0
Ordinary sizes, 6ft. to 9ft. 26 g.	21 10 0	..	22 10 0

METALS (*Continued*).

Per ton in London.	£ s. d.		£ s. d.
Sheets Galvanised Flat, Best quality—			
Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker ..	22 0 0	..	23 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	23 0 0	..	25 0 0
Best Soft Steel Sheets, 26 g.	24 10 0	..	25 10 0
Cut Nails, 3in. to 6in. .. (under 3in. usual trade extras.)	21 10 0	..	23 0 0

METAL WINDOWS—Standard sizes suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1/4 to 1/7 per foot super.

LEAD, &c.

Delivered in London.	£ s. d.		£ s. d.
LEAD—Sheet, English, 4 lb. and up	34 10 0	..	—
Pipe in coils	35 0 0	..	—
Soil Pipe	37 10 0	..	—
Compo pipe	38 10 0	..	—

NOTE—Country delivery, 30s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

Old lead, ex London area, at Mills ..... per ton	21 0 0	..	—
Do., ex country, carriage forward..... per ton	22 0 0	..	—

COPPER—			
Strong Sheet ....per lb.	0 2 3	..	—
Thin „ .... „	0 2 4	..	—
Copper nails .... „	0 2 3	..	—
Copper wire .... „	0 2 4	..	—
TIN—English Ingots „	0 1 9	..	—
SOLDER—Plumbers' „	0 0 10	..	—
Tinmen's..... „	0 1 0	..	—
Blowpipe ..... „	0 1 3	..	—

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES

	Per Ft.		Per Ft.
15 oz. fourths	3½d.	32 oz. fourths	8½d
„ thirds	4½d.	„ thirds	10d.
21 „ fourths	5½d.	Obscured Sheet, 15 oz.	4½d.
„ thirds	6d.	21 „	7d.
26 „ fourths .. .	6½d.	Fluted and }	15 „ 8½d.
„ thirds	7½d.	Enamelled }	21 „ 10½d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
Rolled plate	4½d.
Rough rolled	5½d.
Rough rolled	6½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	6½d.
Ditto, tinted	9d.
Rolled Sheet	6d.
White Rolled Cathedral.....	5½d.
Tinted do.	7½d.

Cast Plate is same price as rough rolled.

PAINTS, &c.

	£ s. d.
Raw Linseed Oil in pipes..... per gallon	0 3 7
„ „ „ in barrels .... „	0 3 9
„ „ „ in drums .... „	0 4 0
Boiled „ „ in barrels .... „	0 4 1
„ „ „ in drums .... „	0 4 3
Turpentine in barrels ..... „	0 9 10
„ in drums (10 gall.) .. „	0 10 1
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)	54 5 0
GENUINE WHITE LEAD PAINT— "Father Thames," "Nine Elms," "Park," "Supremus" and other best brands (in 14 lb. tins) not less than 5 cwt. lots .....per ton delivered	75 10 0
Red Lead, Dry (packages extra) .. per ton	38 0 0
Best Linseed Oil Putty ..... per cwt.	0 17 0
Filocol ..... per cwt.	0 15 6
Size. X D Quality..... fkn.	0 3 6

VARNISHES, &c.

	Per gallon. £ s. d.
Oak Varnish.....Outside	0 14 0
Fine ditto ..... ditto	0 16 0
Fine Copal ..... ditto	0 18 0
Pale Copal ..... ditto	1 0 0
Pale Copal Carriage ..... ditto	1 4 0
Best ditto ..... ditto	1 12 0
Floor Varnish..... Inside	0 18 0
Fine Pale Paper ..... ditto	0 18 0
Fine Copal Cabinet ..... ditto	1 2 6
Fine Copal flatting ..... ditto	1 0 6
Hard drying Oak ..... ditto	0 18 0
Fine Hard drying Oak ..... ditto	0 19 0
Fine Copal Varnish ..... ditto	1 0 0
Pale ditto ..... ditto	1 2 0
Best ditto ..... ditto	1 12 0
Best Japan Gold Size.....	0 12 0
Best Black Japan	0 14 0
Oak and Mahogany Stain (water)	0 12 0
Brunswick Black	0 9 0
Berlin Black.....	0 14 0
Knotting (patent)	1 5 0
French and Brush Polish	1 2 6
Liquid Dryers in Terebine	0 12 6
Cuirass Black Enamel	0 7 0

* The information given on this page has been specially compiled for THE BUILDER and is, we believe, right. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

CURRENT PRICES FOR BUILDING WORK IN LONDON.*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	15	0
Add if in clay	" "	1	6
Add for every additional depth of 6 ft.	" "	0	9
Planking and strutting to trenches	per foot super	0	7
Do. to sides of excavation, including shoring	" "	1	2

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	40	0
Add if in underpinning in short lengths	" "	9	0
Add if in floors 6 in. thick	" "	3	9
Add if in beams	" "	4	6
Add if aggregate 1 : 2: 4	" "	11	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	3	6

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	34	0	0
Add if in stocks	"	8	10	0
Add if in Staffordshire blues	"	24	0	0
Add if in Portland cement and sand	"	3	0	0

FACINGS.

		s.	d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

		s.	d.
Neat flat strucks or weathered joint	" "	0	0	3

ARCHES.

		s.	d.
Extra only to the price of ordinary brickwork :—			
Fair external in half brick rings	" "	0	0	10
Axed in stocks	" "	0	1	9
Rubbed and gauged jointed in putty camber or segmental	" "	0	6	0

SUNDRIES.

		s.	d.
Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	3
Setting ordinary register grates and stoves	each	1	1	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	5	5	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	7	6
Three-quarter-inch vertical damp course	" "	11	0
¾ inch on flats in two thicknesses	" "	8	6
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	4

MASON.

		s.	d.
York stone templates fixed	per foot cube	16	3
York stone sills fixed	" "	28	6
Bath stone and all labour fixed	" "	12	0
Portland stone fixed	" "	21	6

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	79	9
Do. 20 in. × 10 in. Do. Do.	"	90	9
Do. 24 in. × 12 in. Do. Do.	"	99	0

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	5	6
Do. joists	" "	6	0
Do. roofs, floors and partitions	" "	6	6
Do. trusses	" "	8	6

		¾"	1"	1¼"	2"
Deal rough close boarding	per sq.	42/-	48/-	56/-	85/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	"	60	0
Do. to beams	per ft. sup.	1	6
Centres for arches	"	2	0
Gutter boards and bearers	"	1	1

FLOORING.

		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.		49/-	58/-	67/-
Do. tongued and grooved	"		54/-	65/-	72/-
Do. matchings	"	45/-	55/-		
Moulded skirting, including backings and grounds	per ft. sup.	1/8	2/1	2/3	2/9

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	10
Two Do. Do. Do.	" "	2	3
Add for fitting and fixing	" "	0	6
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights; average size	" "	4	0

DOORS.

		1½"	1¾"	2"
Two-panel square framed	per ft. sup.	2/4	2/7	2/9
Four-panel Do.	"	2/8	3/0	3/3
Two-panel moulded both sides	"	3/0	3/3	3/6
Four-panel Do. Do.	"	3/3	3/7	3/10

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	14	0

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	1/9	1/10	2/1
Deal shelves and bearers	"	1/6	1/8	1/11
Add if cross tongued	"	2d.	2d	2d.

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed	1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail; average 3 in. × 3 in.	" "	6	0
Add if ramped	" "	11	10
Add if wreathed	" "	23	9

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/4
Sash fasteners	11½d.	Mortice locks	5/3
Casement fasteners	1/5	Patent spring hinges and letting in to floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	17	0
Plain compound girders	"	20	0
Do. stanchions	"	23	0
In roof work	"	28	0

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	1/11	2/4½	3/7	4/-
Ogee Do. Do.	"	2/4½	3/1	3/10	4/9
Rain-water pipes with ears	"	2/9	3/7		
Extra for shoes and bends	each	4/4	5/11		
Do. stopped ends	"	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	56	0
Do. Do. in flats	"	52	0
Extra labour and solder in coated cesspools	each	7	4
Welt joint	per ft. run.	0	6
Soldered seam	" "	1	10
Copper nailing	" "	0	7

	½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run 10d.	1/3	1/9	3/1	3/10	
Do. service	" 1/5	1/11	2/3	3/6		
Do. soil	"					6/2
Bends in lead pipe	each				3/3	8/2
Soldered stop ends	" 1/2	1/8	2/1	2/10	3/6	
Red lead joints	" 11d.	1/-	1/3	1/11	2/4	4/10
Wiped soldered joints	" 2/10	3/6	4/-	4/11	6/6	9/9
Lead traps and cleaning screws	"			14/7	19/6	
Bib cocks and joints	" 6/4	9/7	15/4	41/-		
Stop cocks and joints	" 15/4	17/2	25/8	64/-		

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	2	9
Do. Do. Sirapite	" "	2	11
Do. Do. Keen's	" "	4	0
Add sawn lathing	" "	1	7
Add metal lathing	" "	2	10
Portland cement screed	" "	2	1
Do. plain face	" "	3	9
Mouldings in plaster	per 1 girth	3	3
One-and-a-half granolithic pavings	per yard sup.	6	4

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	1	1
26 oz. Do.	" "	1	4
Obscured sheet	" "	1	8
⅛ in. rolled plate	" "	1	0
¼ in. rough rolled or cast plate	" "	1	1
¼ in. wired cast plate	" "	1	7

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	1	0
Knotting and priming	" "	0	8
Plain painting 1 coat	" "	0	11
Do. 2 coats	" "	1	7
Do. 3 coats	" "	2	4
Do. 4 coats	" "	3	0
Graining	" "	2	5
Varnishing twice	" "	1	11
Sizing	" "	0	4
Flatting	" "	0	8
Enamel	" "	1	3
Wax polishing	per foot sup.	0	9
French polishing	" "	1	3
Preparing for and hanging paper	per piece	2/- to 4/-	

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

TENDERS.—*Continued from page 602*

KENT.—Erection of 23 detached cottages in connection with Small Holdings, Skeet-hill, Chelsfield, for the Kent County Council :—

	Total amount of Tender.	"T" Type (6 cottages)	"F R" Type (5 cottages)	"S" Type (6 cottages)	"E M" Type (6 cottages)
Kent Builders, Farnborough	£19,491 12 0	£864 0 0	£864 0 0	£855 0 0	£809 12 0
The London Building Co., Ltd., Westminster	16,674 0 0	720 0 0	720 0 0	694 0 0	645 0 0
H. Friday & Sons, Erith	16,500 0 0	720 0 0	720 0 0	749 0 0	696 0 0
J. A. Davison, West Malling	16,304 0 0	726 0 0	724 0 0	711 0 0	677 0 0
W. & C. F. Mills, Chelsfield	16,125 0 0	740 0 0	745 0 0	775 0 0	700 0 0
Pearce Bros., Bromley	15,937 10 0	712 10 0	712 10 0	700 0 0	650 0 0
G. H Gunning & Sons, Erith	15,000 0 0	660 0 0	660 0 0	650 0 0	640 0 0
Y. J. Lovell & Son, Marlow	14,996 0 0	694 0 0	694 0 0	626 0 0	601 0 0
J. W. Ellingham, Dartford	14,626 0 0	650 0 0	650 0 0	637 0 0	609 0 0
W. T. Champion & Son, Peckham Rye	13,853 0 0	607 0 0	607 0 0	621 0 0	575 0 0
J. G. Parsons & Son, Folkestone	13,308 0 0	603 0 0	600 0 0	565 0 0	550 0 0
West Bros., Strood	13,148 10 0	590 0 0	590 0 0	567 15 0	542 0 0
Hoad & Taylor, Horsham	12,891 0 0	585 0 0	585 0 0	538 0 0	538 0 0
The Castle Construction Co., Orpington	12,622 2 0	554 0 0	554 0 0	567 17 0	558 10 0
N. Smith & Son, Maidstone	12,120 0 0	540 0 0	540 0 0	520 0 0	510 0 0
J. Wallis & Sons, Ltd., Sydenham	11,972 0 0	484 0 0	484 0 0	554 0 0	554 0 0
R. Large & Son, Orpington	11,726 0 0	496 0 0	496 0 0	548 0 0	497 0 0
Cox Bros., Maidstone	11,652 0 0	510 0 0	510 0 0	500 0 0	507 0 0
Pattinson & Sons, Ltd., London	11,462 0 0	488 13 4	487 8 0	524 0 0	491 10 0
Denton Bros., St. Mary Cray	11,116 18 9	481 8 9	481 8 9	507 1 3	463 2 6
Perry Bros., Ealing	11,085 0 0	495 0 0	495 0 0	480 0 0	460 0 0
S. E. Moss, Southend-on-Sea	10,890 0 0	500 0 0	438 10 0	475 0 0	475 0 0
‡Chas. Groom, Sons & Co., Ltd., Ealing	10,736 0 0	454 0 0	454 0 0	493 0 0	464 0 0

‡ Submitted to the Ministry of Agriculture for approval.

LAMPETER.—For erection of new mart and market, for the T.C. Mr. T. D. Evans, architect and surveyor, Well Villa, Llandyssul. Quantities by architect :—

†Robert Williams, Manordilo	£1,942 10
Materials to be re-used, valued at	462 18
Total	£2,405 8

LEEK.—For erection of one block of three houses at Barnfields, for the U.D.C. Mr. W. E. Beacham, Architect and Surveyor, Town Hall, Leek :—

J. Heath & Sons, Leek	£2,299
J. Cooke, Longport	2,150
Ball & Robinson, Stoke-on-Trent	2,035
Finney & Broadhead, Stoke-on-Trent	1,995
Thos. Grace, Leek	1,995
P. Pemberton, Tinstall	1,940
Ball & Sons, Stoke-on-Trent	1,717
S. Salt, Leek	1,650
‡National Building Guild, Hanley	1,620

LICHFIELD.—For erection of conveniences in the Market-square, for the T.C. :—

*G. T. Stephens, Birmingham	£1,150

LITTLEHAMPTON.—For making four hard tennis courts and bowling green, for the U.D.C. The Surveyor, Town Offices, Littlehampton :—

En-tout-cas, Leicester	£1,168 7
*Gaze's, Kingston-on-Thames	850 3
Tennis Courts only—	
Improved Hard Court Co., London	901 7
Shepherd & Sons, Rochdale	802 0
Chittenden & Simmons, Maidstone	840 6

LLANGADOCK.—For erection of a dwelling house and for adapting and altering farm buildings at Ynysymoch, for the Carmarthenshire County Small Holdings Committee. Mr. W. Vincent Morgan, County Architect, County Council Offices, Carmarthen :—

D. Howells & Son, Llandebie	£2,150 0
Robert Williams, Manordilo	1,494 0
Daniel Davies, Llandovery	1,449 0
Chas. Thomas & Co., Llandilo	1,385 0
John Morris, Penybanc, Llandilo	1,320 0
H. Bowen Jones, Burry Port	1,095 15
Hughes & Samuel, Pwll, Llanelly	1,050 0
*D. P. Walters, Carmarthen	985 0

LONDON.—For laying mastic asphalte on existing concrete foundations in (*a*) Half-Moon-lane and Villageway 1½ in. thick, and (*b*) South Croxsted-road, 1 in. thick, for the Camberwell B.C. :—

*(*a*) Whitehall Asphalte & Engineering Co.—9s.11d. per super yard.
*(*b*) French Asphalte Co.—5s. 9d. per super yard.

LONDON.—For diversion of sewer at Argyll-place, for the Westminster C.C. :—

Whittaker Ellis, Ltd. (tender informal)	£3,915 2 0
A. Thomson & Co.	2,577 10 2
J. Mowlem & Co., Ltd.	2,563 9 7
*D. R. Paterson, Ltd.	2,138 13 0

LONDON.—For various works for the London County Council :—

Installation of electric wiring of the buildings, motors, &c., at Eleventh Mental Hospital, Epsom—

Glumart, Cox & Co., London	Incomplete
R. Houchin, London	£16,012 0
G. N. Haden & Sons, Ltd., London	15,179 0
Pinching & Walton, London	14,432 0
Cox Walkers, Ltd., Darlington	14,394 0
G. E. Taylor & Co., London	14,360 0
H. J. Cash & Co., Ltd., London	14,039 0
Tyler & Freeman, London	13,600 0
J. R. Dunkley & Co., Huddersfield	13,187 0
Malcolm & Allan, Ltd., London	12,960 0
Alpha Manufacturing Co., London	12,489 7
Electrical Installations, Ltd., London	12,334 6
F. Craft, Ltd., Castleford	11,117 0
Western Engineering Co., Ltd., Liverpool	10,560 0
Brightside Foundry and Engineering Co., Ltd., Birmingham	10,500 0
T. Clarke & Co., London	10,498 9
Marryat & Place, London	9,690 0
*Higgs & Hill, Ltd., London	9,476 0
D. Henderson, Glasgow	8,700 0

Supplying and fixing of overhead electrical conductors' &c., at Mental Hospital, Epsom—

J. R. Dunkley & Co., Huddersfield	£16,143 0 0
T. Clarke & Co., Ltd., London	12,300 0 0
Johnson & Phillips, Ltd., Charlton	12,260 0 0
Siemens Bros. & Co., Ltd., Woolwich	11,907 0 0
Western Electric Co., Ltd., North Woolwich	11,628 0 0
R. Houchin, London	10,911 0 0
Haden & Sons, Ltd., London	10,639 0 0
Marryat & Place, London	10,230 0 0
Alpha Manufacturing Co., London	9,860 0 0
Pinching & Walton, London	9,702 0 0
Callenders Cable and Construction Co., Ltd., London	9,683 0 0
G. E. Taylor & Co., London	9,674 0 0
W. T. Henley's Telegraph Works Co., Ltd., London	9,426 2 11
Electrical Installations, Ltd., London	8,904 16 0
Higgs & Hill, Ltd., London	8,166 0 0
Tyler & Freeman, London	8,020 0 0
*Cox Walkers, Ltd., Darlington	7,573 0 0
Malcolm & Allan, Ltd., London	6,590 0 0

Installation of kitchen plant at Hospital, Epsom, (a) with gas oven, (b) with bakery oven in lieu of gas oven—

	(a)	(b)
Benham & Sons, London	£4,832 0 0	£5,028 15 0
Wm. Green & Co., Ecclesfield	4,461 14 0	4,961 14 0
McDowall, Steven & Co., Stirling	4,320 7 10	4,638 7 10
Buckley's (London), Ltd., London	4,295 0 0	4,605 0 0
Ashwell & Nesbit, Ltd., Leicester	4,288 0 0	4,608 0 0
Richard Crittall & Co., London	4,228 0 0	4,646 0 0
Carron Co., Stirling	4,173 0 0	4,371 0 0
T. Bradford & Co., Salford	4,171 10 0	4,461 10 0
J. & F. May, Ltd., London	4,142 0 0	—
Falkirk Iron Co., Ltd., Falkirk	3,518 10 0	3,903 10 0
*Moorwoods, Ltd., Sheffield	3,466 2 8	3,839 2 8

Erection of dwellings on Brady-street Area—

S. Shaw, London	£37,671 0
Thomas & Edge, Woolwich	26,930 0
A. Roberts & Co., Ltd., London	26,627 0
Thos. Shillitoe, London	25,950 0
Leslie & Co., Ltd., London	25,869 0
S. E. Moss, Southend-on-Sea	25,628 14
Kirk & Randall, Ltd., London	26,063 0
W. Pattinson & Sons, Ltd., London	24,843 0
Albert Monk, Lower Edmonton	24,500 0
Walter Jones & Sons, London	24,148 0
Chessums, Ltd., Tottenham	24,085 0
Allen Fairhead & Son, Enfield	23,832 0
J. E. Billings & Co., Ltd., Oxford	22,561 0
Alfred G. Winters, South Norwood	22,512 0
*Rowley Bros., Wood Green, N.	22,444 0

Erection of Huberd House on Tabard-garden Estate—

George Slade & Co., Ltd., London	£22,000
William Moss & Sons, Ltd., London	21,785
Leslie & Co., Ltd., London	21,693
W. Pattinson & Sons, Ltd., London	21,243
C. Miskin & Sons, Ltd., London	20,450
Roberts (Birmingham), Ltd., Birmingham	19,990
R. Merton Hughes, London	19,921
Allen Fairhead & Son, Enfield	19,119
Rowley Bros., Wood Green, N.	18,907
*J. E. Billings & Co., Ltd., Oxford	18,117

For Works for the Education Committee.

Renewing electric storage battery—L.C.C. Averyhill Training College (*Woolwich, W.*)—
*Pritchett & Gold and E.P.S. Co., Ltd... £370

Providing and fixing additional boilers, &c.—Holland-street (*Southwark, N.*)—
*H. J. Cash & Co., Ltd. £128

Heating installation—Oxford-gardens (*Kensington, N.*)—
*Wm. Griffiths, Sons & Cromwell, Ltd... £930

Heating installation—Adys-road (*Dulwich*)—
*Thames Bank (Blackfriars) Iron Co., Ltd. £1,744

Heating installation—Athelney-street (*Lewisham*)—
*H. J. Cash & Co. £1,088

Remodelling heating apparatus—Bow-creek (*Poplar, S.*)—
*J. T. Meredith & Co., Ltd., £450

Repairs to boiler—Crampton-street (*Southwark, C.*)—
*J. Wontner Smith, Gray & Co., Ltd... £106

Providing additional heating surface—Hackney Downs Secondary (*Hackney, C.*)—
*J. Jeffreys & Co., Ltd. £675

Reconstruction of boiler flue—Ilderton-road (*Camberwell, N.*)—
*W. J. Dixon & Son. £269

Provision of additional heating surface—Keeton's-road (*Rotherhithe*)—
*H. J. Cash & Co. £112

Re-drainage of schoolkeeper's house—King-street (*St. Pancras, S.E.*) –
*J. Marsland & Sons, Ltd. £132

Reconstruction of boiler flue—Oxford-gardens (*Kensington, N.*)—
*Triggs & Co. £338
And for incidental expenses 20

Repairs to flooring—Rolls-road (*Camberwell, N.*)—
*W. J. Dixon & Son. £459
And for incidental expenses 30

Provision of additional heating surface—Santley-street (*Brixton*)—
*J. T. Meredith & Co., Ltd. £190

Renewal of boiler—South Lambeth-road (*Kennington*)—
*W. G. Cannon & Sons, Ltd. £220

Repairs to roof—Shoreditch Technical Institute (*Shoreditch*)—
*Griggs & Son. £189 10
And for incidental expenses 10 0

Reconstruction of boiler flue—Waldron-road (*Wandsworth, C.*)—
*Triggs & Co. £247
And for incidental expenses 20

For painting and cleaning work in Schools—

*Clements (Grays, Ltd.—Buxton-street (*Whitechapel and St. George's*)	£561 12 0
*J. C. Mather—The Cloudesley (MD & PD) (*Islington, S.*)	460 0 0
*Whitbys, Ltd.— Dalston Central (*Hackney, C.*)	421 18 0
*Chudleigh Bros.—Faroe-road (PD) (*Hammersmith, S.*)	135 0 0
*R. M. Hughes —Finlay-street (I) and Fulham Central (G) (*Fulham, W.*)	531 0 0
*Triggs & Co.—Fulham Central (B) (*Fulham, W.*)	449 0 0
*A. Monk—High-street, Stoke Newington (*Hackney, N.*)	975 0 0
*R. M. Hughes—Kingwood-road (*Fulham, W.*)	671 0 0
*G. Butters— Laburnum-street (*Shoreditch*)	750 16 0
*A. H. Inns— London Day Training College (*Holborn*)	645 0 0
*G. Barker—Lowood-street (MD & PD) (*Whitechapel and St. George's*)	587 0 0
*F. Foxley & Co., Ltd.—The Mary Ward (PD) (*St. Pancras, S.E.*)	135 0 0
*A. A. Secrett, Ltd.—Mitcham-lane (*Streatham*)	995 0 0
*C. P. Roberts & Co., Ltd.—Northwold-road (MD) (*Hackney, N.*)	180 0 0
*A. H. Inns—Ocean-street (*Mile-end*)	794 0 0
*J. R. Sims – Old Kent-road (Deaf & PD) (*Southwark, S.E.*)	750 0 0
*A. H. Inns—Osborn-place (MD & PD) (*Whitechapel and St. George's*)	245 0 0
*Triggs & Co.—The Paragon (*Southwark, S.E.*)	794 0 0
*J. Hocking & Co.—Powis-street (MD, PD & Blind) (*Woolwich, W.*)	703 0 0
*F. Cottrell, Ltd.—Romilly-road (MD Elder Boys) (*Islington, E.*)	160 0 0
*British Renovating Co., Ltd.—School of Engineering and Navigation (*Poplar, S.*)	365 0 0
*W. Standing—Sydenham Secondary (*Lewisham, W.*)	864 0 0
*W. S. Sharpin—Tollet-street (Deaf, MD & PD) (*Mile End*)	783 0 0
*C. Berger—Upper Marylebone-street (*St. Marylebone*)	864 0 0
*W. H. Gaze & Sons, Ltd.—West-hill (*Putney*)	993 0 0
*Hooper & Hooper—The Whittington (*Islington, N.*)	656 12 6
*R. Gibson—Wickersley-road (Blind) (*Battersea, S.*)	227 7 0
*Lane Bros.—Middle-row (*Kensington, N.*)	38 10 0
*Stevens & Sons—Berkshire-road (*Hackney, S.*)	1,574 0 0
*J. R. Sims—The Hatcham (PD) (*Deptford*)	150 0 0
*Triggs & Co.—Victory-place (*Southwark, S.E.*)	448 0 0
*G. Hill & Son, Ltd.—Brixton-hill Day Continuation School (*Brixton*)	393 0 0
*W. J. Marston & Son—Camborne-road Day Continuation School (*Putney*)	176 0 0
*Prestige & Co., Ltd.—Flint-street (*Southwark, S.E.*)	1,126 0 0
*A. & F. Polden—New End (*Hampstead*)	665 0 0
*Holiday & Greenwood, Ltd.—North Kensington Central (*Kensington, N.*)	477 0 0
*Triggs & Co.—Peckham-rye (*Peckham*)	1,287 0 0
*Ward, Saul & Co.—The Ravensbourne (*Deptford*)	563 0 0
*A. Rowland & Co.—Springwell House Tuberculous (*Battersea, S.*)	148 11 0
*Domart—Tadema-road Day Continuation School (*Hammersmith, S.*)	142 5 0
*D. C. Bowyer—Torridon-road (*Lewisham, E.*)	930 5 10

Adaptation of Highbury Industrial School for Secondary School—

A. Monk, Edmonton	£1,916 0
Whitbys, Ltd., High Holborn	1,852 10
G. Slade & Co., Ltd., Islington	1,840 0
J. Marsland & Sons, Ltd., W.C.	1,636 0
T. J. Lovell & Son, Paddington	1,618 0
Stevens & Sons, Crouch-hill	1,516 0
W. J. Dixon & Son, Bermondsey	1,444 0
E. A. Roome & Co., Ltd., Hackney	1,216 0
F. Cottrell, Ltd., Crouch-hill	1,198 0
L. H. & R. Roberts, Lower Clapton	1,165 0
*C. P. Roberts & Co., Ltd., E.8	1,088 0

NEWPORT.—Supply of pipes for the Talybont water scheme of the T.C. :—

†Cochrane & Co., Middlesbrough.. £101,960

NOTTINGHAM.—For erection of a new receiving home and alterations to the infants' home, Hartley-road, for the B.G. Messrs. E. R. Sutton & Son, architects, Albion Chambers, King-street, Nottingham. Quantities by architects :—

T. Long & Sons, Nottingham	£7,138
W. Crane, Ltd., Nottingham	6,940
Dennett & Ingle, Nottingham	6,740
C. Wooll & Sons, Nottingham	6,700
W. H. Brakes, Nottingham	6,638
J. G. Short & Sons, Nottingham	6,590
T. Barlow & Co., Nottingham	£6,498
Hartley & Co., Nottingham	6,400
F. Evans & Sons, Nottingham	6,390
William Ward, Nottingham	6,384
G. A. Pillatt & Son, Nottingham	6,324
J. Wright, Nottingham	6,300
A. J. S. Parsons, Nottingham	6,2 0
White & Kennewell, Nottingham	6,209
Bosworth & Lowe, Nottingham	6,200
J. W. Stamp & Co., Nottingham	5,990
T. Bow, Nottingham	5,980
J. F. Bush, Nottingham	5,950
T. H. Harper, Carlton	5,938
Rowland Bros., Kimberley	5,800
Gilbert & Hall, Nottingham	5,786
H. Brackenbury, Nottingham	5,490

OAKHAM.—For erection of laundry and alterations to buildings, for the B.G. Mr. F. W. Nichols, surveyor, Market-place, Oakham. Quantities by surveyor :—

A. E. Brown & Co., Grantham	£999 0 0
E. Ireson, Stamford	890 0 0
Clarke & Belton, Stamford	838 5 0
Higgs & Sons, Oakham	795 10 0
Draycott & Stimson, Oakham	698 6 6
R. S. Jellings, Peterborough	688 0 0
†J. Simpson, Braunston	667 0 0

PORTSMOUTH.—For erection of lock-up shops Milton, for Wm. Miller, Ltd. Mr. Wm. T. Rogers, architect and surveyor, 120, Victoria-road North, Southsea :—

G. F. Smith & Co.	£1,550
Jno. Croad	1,424
Tanner Bros.	1,410
John Lay & Co.	1,382
*Frank Privett	1,330

RAINHAM (KENT).—For certain repairs to sea wall at Motley Hill, for the Rochester and Chatham Joint Sewerage Board. Mr. W. Cuckney, Acting Clerk, Town Hall, Chatham :—

*Henry James Wright, Strood £173 10

RICHMOND.—For street works in Fitzwilliam-avenue, Gainsborough-road, Temple-road, Burdett-road, Gordon-road, and Dudley-road, in connection with Housing Scheme for the T.C. Mr. J. H. Brierley, Borough Surveyor, Town Hall, Richmond :—

Campbell, Kenyon & Co., Acton	£8,999 9 0
S. Kavanagh & Co., Surbiton Hill	6,475 19 5
W. Walkerdine, Ltd., N. Kensington	6,081 14 6
H. Woodham & Sons, Ltd., Catford	5,966 17 9
Parr-Head & Clements Knowling, Ltd., Ealing	5,787 0 0
John Cronk & Son, Brixton Hill	5,439 0 0
Charles Carter, Golders Green	5,424 6 5
Geo. Wimpey & Co., Ltd., Hammersmith	5,207 3 10
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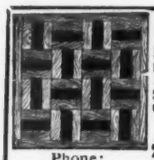
*(*a*) Edward Wood & Co., Salford .. £37,596
*(*b*) Sir Robt. McAlpine & Sons 73,632



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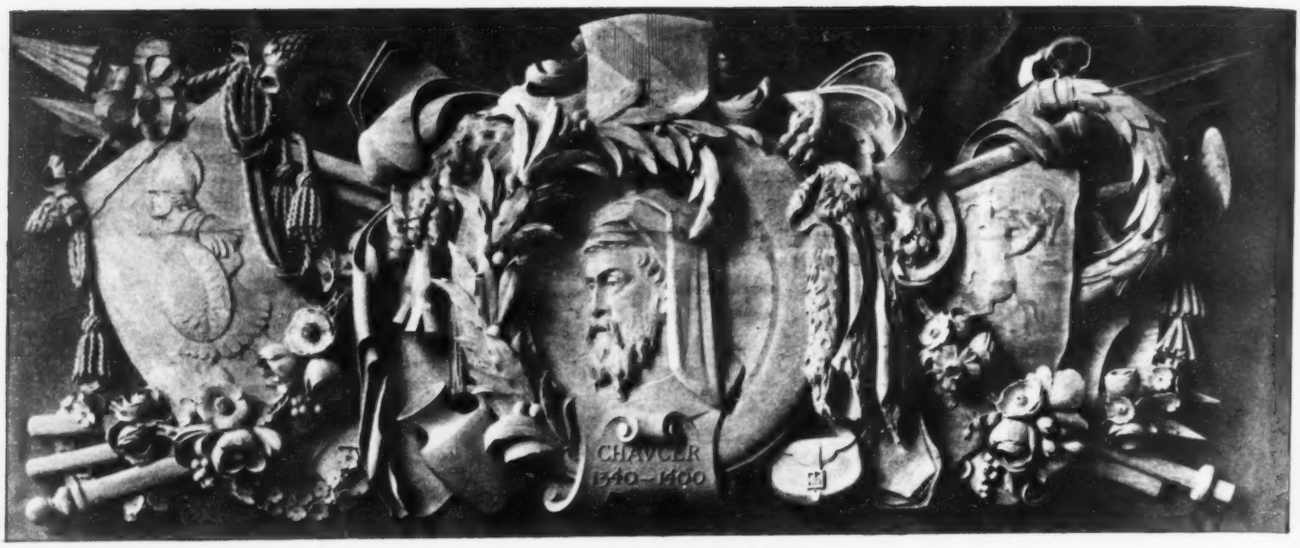
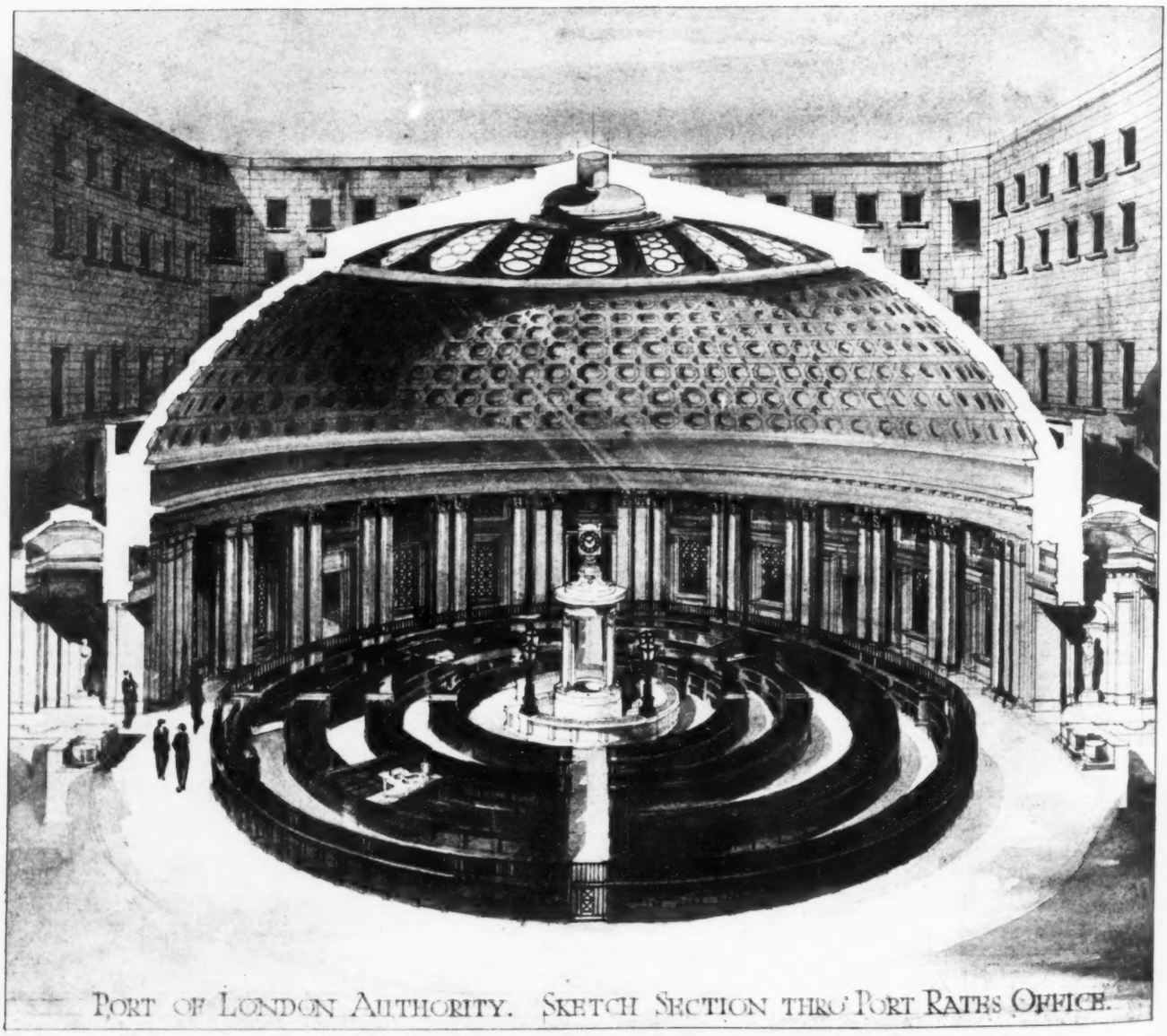


DETAILS OF CARVING IN BOARD ROOM.



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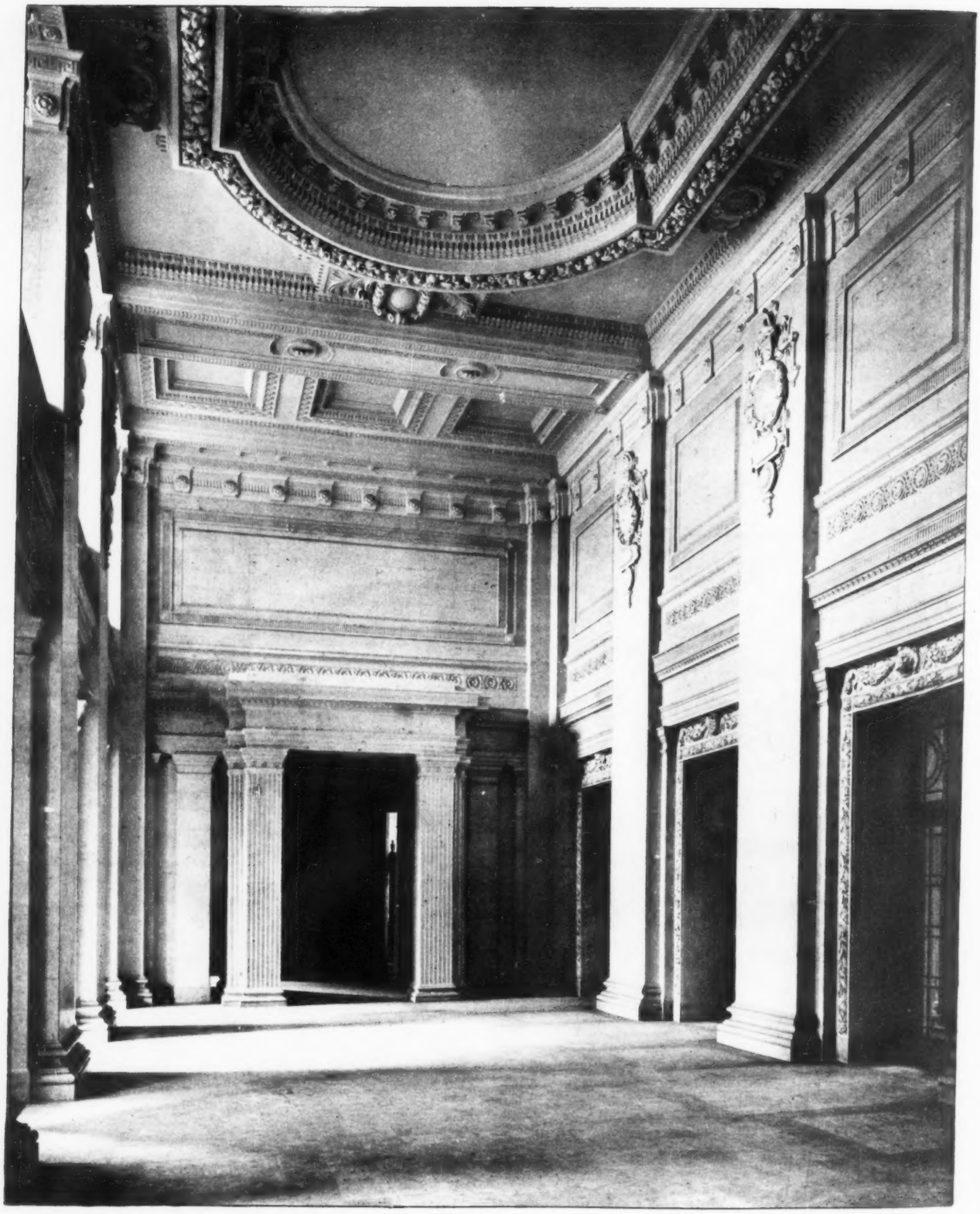

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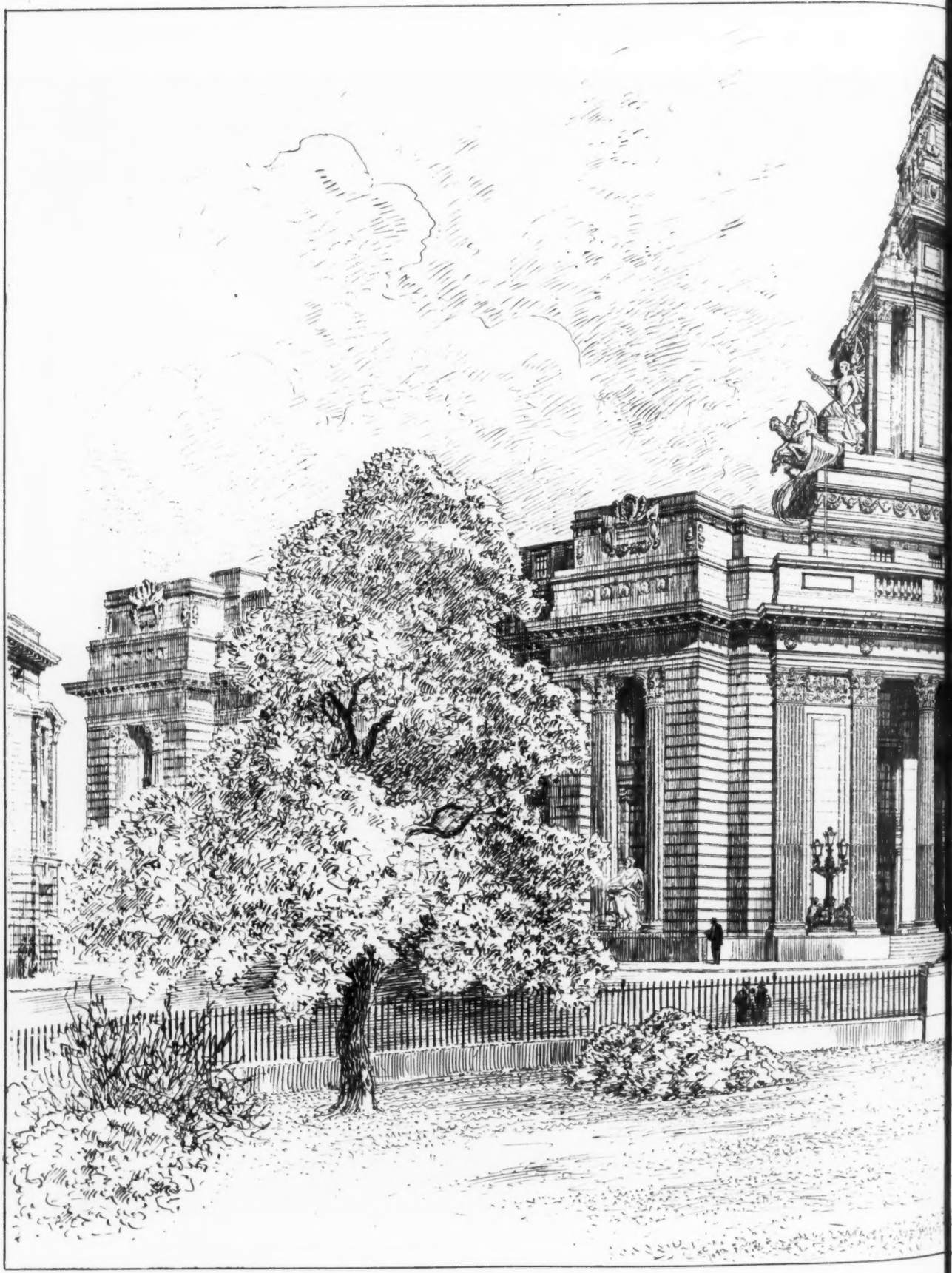

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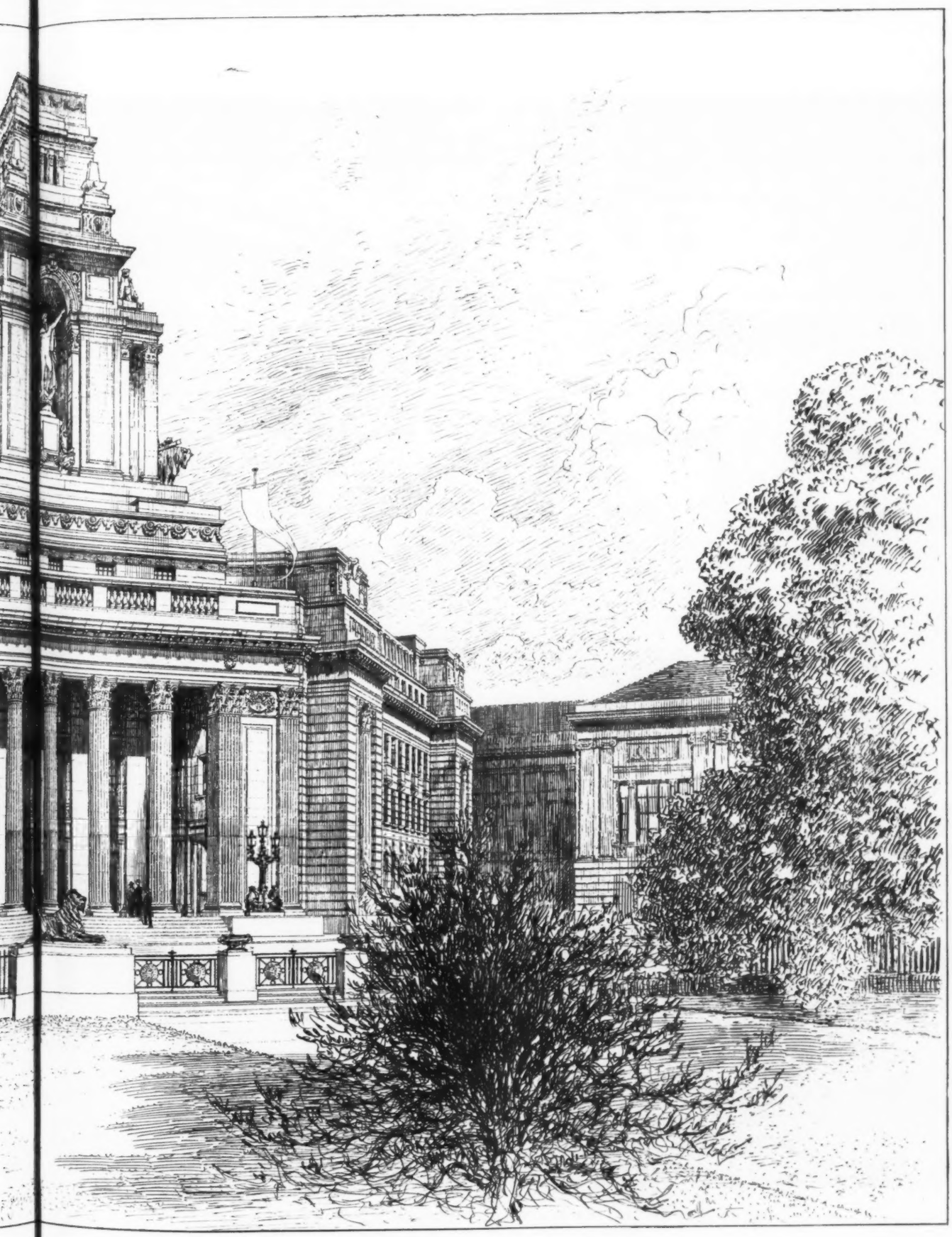

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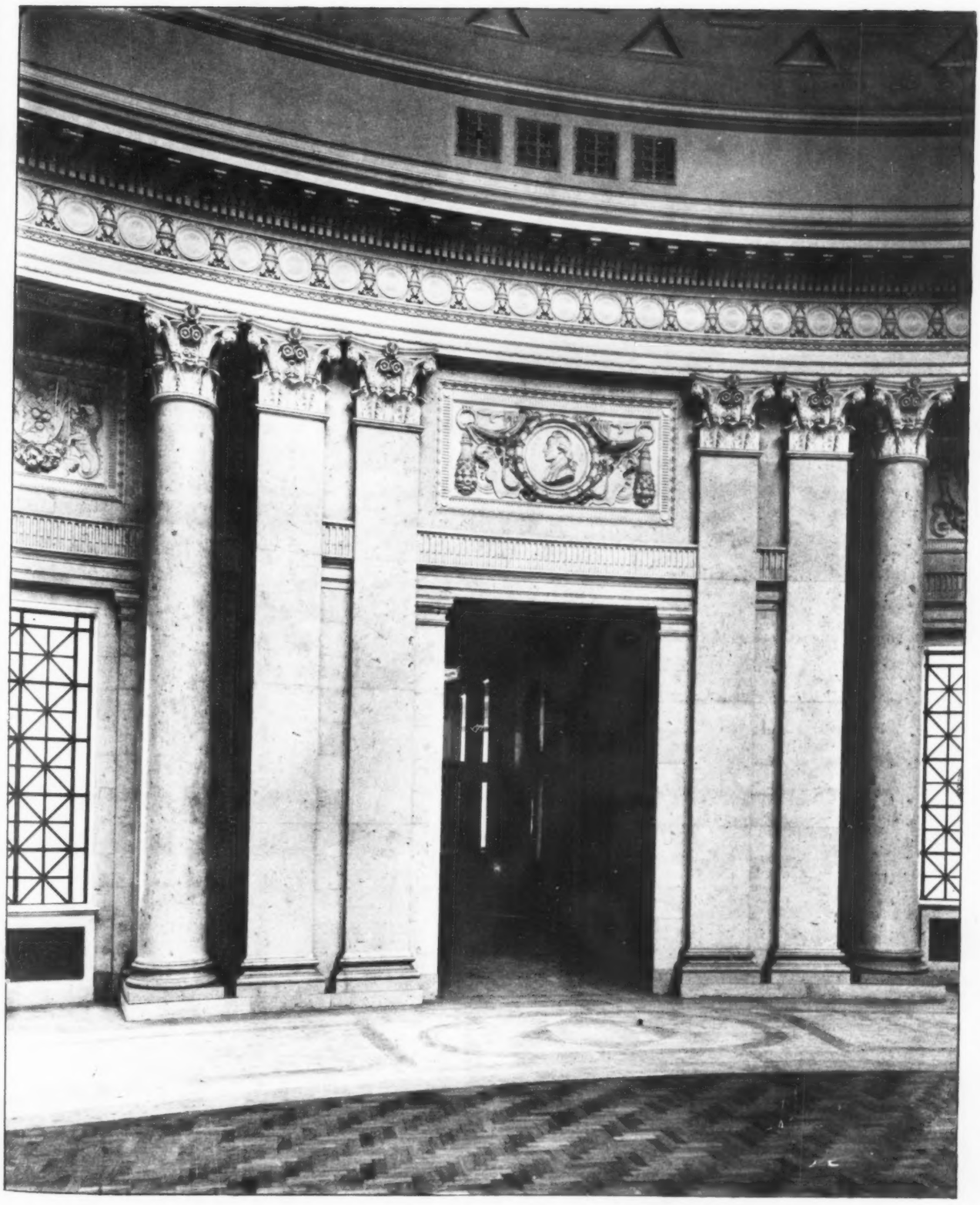

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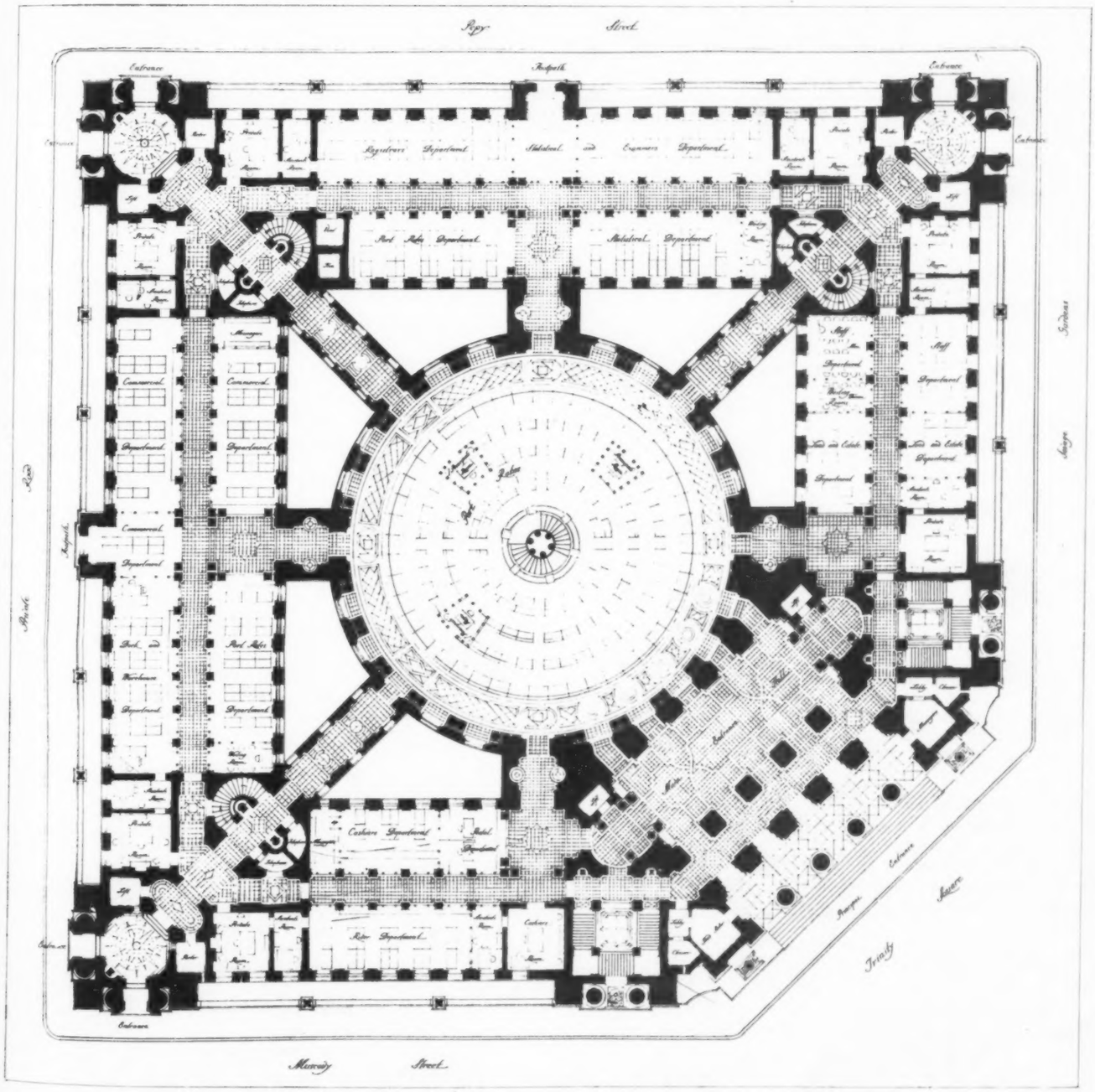

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